# 

HIGHWAYS . BRIDGES . AIR FIELDS . HEAVY CONSTRUCTION

A GILLETTE PUBLICATION

-3illette Publishing Co., 22 West Maple St., Chicago 10, Illinois 

Accepted as Controlled Circulation Publication at Milwaukee, Wis.



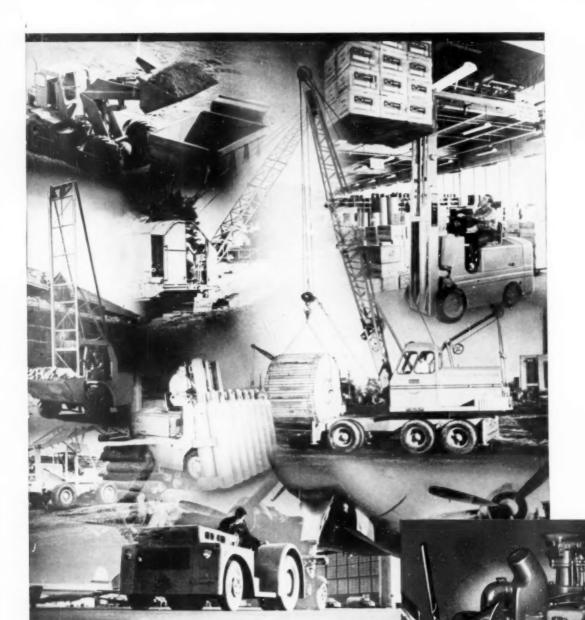
Compacting subbase for Illinois Toll Road concrete . . . page 28

Rolling 8 Million Yards of Sand for Airport . . . page 57

AASHO Chicago Meeting Review . . . page 63

Big Calcium Chloride Stabilization Program . . . page 78

January 1958



The finest equipment in construction and materials handling fields is powered by Chrysler.

Send for 1958 Industrial Engine Catalog!

Address: Industrial Engine Division, Chrysler Corporation, Detroit 31, Mich.

Chrysler Industrial Engines

INDUSTRIAL ENGINE DIVISION . CHRYSLER CORPORATION

... for more details circle 248 on enclosed return postal card



### How long have you waited for a book like this?

Now Bethlehem has gathered, into less than a hundred well-illustrated pages, a world of worthwhile engineering information on the problems of drainage and drainage materials which any engineer, contractor, or township official can put to good use.

Much of this material has never been made generally available before, and never have so many down-to-earth, practical data been assembled under one "roof." This book is simply loaded with usable tables, charts, nomographs, and factual information.

As you may know, Bethlehem does not make culvert pipe. But we do make Beth-Cu-Loy corrugated galvanized sheets for pipe fabricators. If you have not already been given a copy of our book by your fabricator,

we shall be glad to send you one. The coupon is for your convenience. Clip it and mail it today.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Expart Distributor, Bethlehem Steel Export Corporation

**Bethlehem Steel Company** Room 1041

Bethlehem, Pa.

Please send me a capy of Booklet No. 425 "Solving Drainage Problems" along with the names of fabricators near me.

Address

BETHLEHEM STEEL



. . for more details circle 240 on enclosed return postal card ROADS AND STREETS, January, 1958

### ROADS AND STREETS

A GILLETTE PUBLICATION . JANUARY,	1958 • VOLUME 101 • NUMBER 1				
NATIONAL AFFAIRS	CONSTRUCTION JOB MANAGEMENT				
Roads and Streets Newsletter	Prevailing Wage Rate — (Highway Estimating Series)				
EDITORIAL					
Interstate vs. ABC Jobs-Keep Them	AGGREGATE PRODUCTION				
in Balance	Texas-Sized Aggregate Run				
EARTHMOVING AND EXCAVATION	DEPARTMENTS AND SEATURES				
bratory Rollers Compact 8 Million Yards					
of Sand	Cover Scene				
	Personals				
CONVENTION REPORTS	New Publications 40				
AASHO Delegates Hear "Program Moving	Letters to the Editor 50				
Along"	Views and Comments – H. G. Nevitt				
PAVING AND SURFACING	WHERE TO BUY IT				
Calcium Chloride Stabilization—	Reader Inquiry Card Opposite 86				
Million-Ton Maryland Program 78	New Products				
Road-Mix Resurfacing for Heavier Traffic 116  -By H. K. Glidden, Contributing Editor	Trade Literature131				
Mixer and Dryer Innovations in New	Clearing House				
Asphalt Plant122	Advertisers Index150				

### Coming Articles

### Year's Biggest Road Contracts-A Review

What contractors got the largest job load in the highway program? The largest individual contracts? A staff summary.

#### Continuing Rock Excavation Series

When and how contractors are using the large tractormounted drills . . . Rock methods on grading projects in Wyoming, Idaho, New York and New Mexico.

### Handling Traffic Through the Job

Methods used on two spectacular western mountain canyon projects, which preview steps many contractors may have to take as the Interstate Program develops steam.

### What's Happening at Winter Conventions:

The answer: much that interests both contractors and engineers. Watch for Roads and Streets staff coverage of AASHO, HRB, ARBA, AGC and others.

### Aggregates in the Road Program

A series of articles on plant set-ups designed to help contractors produce big daily tonnages and meet the new, exacting specifications.

### Also Coming Along Soon-

Baltimore's new expressway that rides a creekbed . . . Concrete paving methods for heavy pavements with close tolerances . . . Casting and placing huge prestressed units for Second Narrows Bridge, Vancouver, B.C. . . . World's biggest bridge raising job; step by step with the jackmen.

Look for this nearby Goodyear dealer sign for better tire values -better tire care



In the mountains of Guatemala, the last links are being forged in the 3,179-mile right-ofway from Texas to Panama. Landslides (as shown below) are the order of the day-but early in '58, the first wave of American tourists is due to swap dollars for blankets, bananas and local color! Two ten-hour shifts push the work forward, and Goodyear tires-Hard Rock Lug, Sure-Grip Lug and All-Weather Earthmove-help keep the job rolling, faster, surer and at lowest cost-per-mile.





every other Monday 9:30 P.M., E.S.T.

### Tires move more yards for less when built with Triple-Tough 3-T Nylon Cord!

ALL 3-T NYLON CORD-Tubeless or Tube-Type



HARD ROCK



SURE-GRIP LUG

3-T **TEMPERED** LIKE STEEL!



ALL-WEATHER **EARTHMOVER** 

Known as "the greatest tire SAVER in 23 years," Triple-Tough 3-T Nylon Cord is a Goodyear exclusive.

During years of use, on the toughest jobs on earth, Goodyear 3.T Nylon Cord tires have literally saved millions for contractors and truckers who realize that the final cost of any tire depends entirely on what they get out of it.

The fact that more tons are hauled on Goodyear tires than on any other kind, certainly suggests that most operators get more yards-per-dollar, more miles-per-dollar, on Goodyears. If you're not already using Goodyear 3-T Nylon tires on your equipment, try them! Goodyear, Truck Tire Dept., Akron 16, Ohio.

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

Like steel, tire cord must be tempered to be tough. Goodyear's exclusive 3-T process, involving Tension, Temperature and Time, tripletempers cord to make it TRIPLE-TOUGH-to give you longer tire life, lower cost-per-mile.

. . . for more details circle 264 on enclosed return postal card



### 3 feet of frost... trench 5 feet deep... 30 inches per minute

CLEVELAND TRENCHERS, like Sunberg Well Company's Model 110 working here on the installation of 38,000 feet of 4-inch main in tough frost digging in DeSoto, Iowa, have <u>for over 25 years</u> delivered <u>more trench</u>...in <u>more places</u>...at less cost.

Clevelands are built by The Pioneers of the Modern Trencher, originators of <u>every</u> important trencher design feature. There's a Cleveland for every trenching job and you'll find them working everywhere, giving good <u>reliable</u> production on tough jobs as well as easy ones—and doing it for year after year.



. . . for more details circle 253 on enclosed return postal card

### ROADS AND STREETS

Devoted to the design, construction, maintenance and operation of highways, streets, bridges, bridge foundations and grade separations; the construction and maintenance of cirports. Represents 65 years of continuous publishing in the highway field; combined with Engineering and Contracting and Good Roads Magazines, established in 1892.

HAROLD J. McKrever, Editor-in-Chief V. J. Brown, Vice Pres. and Coordinator Charles T. Murray, Managing Editor John C. Black, Associate Editor H. K. Glidden, H. C. Persons, H. G. Nevitt, C. R. Shupe, Contributing Editors Duane L. Crone, Washington Editor James R. Cummings, Assistant Editor Georgia Zografos, Editorial Secretary

### BPA

### GILLETTE PUBLISHING COMPANY

Publication and Editorial Offices:

22 West Maple Street, Chicago 10, III.

HALBERT P. GILLETTE

President and Publisher

V. J. BROWN, Vice President
F. H. G. FORSYTHE, Vice President
HALBERT S. GILLETTE

Vice President and Assistant Publisher

Chicago Office: 22 West Maple St. Superior 7-1581

R. T. Wilson, Gen. Sales Manager Fred H. Bowes, Representative Morgan K. Cottingham, Representative E. Bender, Clearing House Manager

J. L. Latta, Production Manager L. R. Vickers, Circulation Manager

S. Provus, Research Director

New York Office: 87 Wolf's Lane,

Pelham, N.Y., Pelham 8-3200 F. A. Michel Jr., Eastern Manager

Cleveland Office: 516 The Arcade Cherry 1-5638 Ray Keine, Manager

Pasadena Calif: Sycamore 4-8328 West Coast Office: 1126 Del Rey, J. A. Osborne, Manager

### OTHER GILLETTE PUBLICATIONS

Magazine

Rural Roads • Street Engineering Bituminous Roads and Streets World Construction Caminos y Construccion Pesada

#### **Prefiled Catalogs**

Heavy Construction (U.S. & Canada) World Construction (International) Construction Pesada (Latin)

### Slow Pay for Contractors makes roads cost more!

In a recent issue of the Washington News Letter, Duane L. Cronk, "Roads and Streets" Washington Editor, reports:

Credit needs of the highway industry to meet the expanded road-building program have just been released by the American Road Builders Association. ARBA believes that, in spite of the tight money situation, highway construction will not be deterred.

The ability of contractors to bid on work is markedly affected, however, ARBA declares, by their supply of working capital. The implication is that if a state highway department wants the most contractors possible bidding on future jobs, it should do what it can to make it financially possible for them to do so. That means retaining less money and making quicker payments for work completed. Here are some practices ARBA would like to see highway officials adopt to bring money earned by contractors into their pockets faster:

Reduce present 10% ordinarily retained on contract work to maximum of 10% retained only on first 50% of work performed under contract.

Assign enough men within the department to processing of contractor's estimates to assure prompt payments.

Reduce the regular estimate payment interval from one month to two weeks.

Schedule lettings to avoid overloading contractor capacity in any period, and plan them at least six months to a year in advance.

Pay for materials delivered to job site to fullest extent possible.

Make progress payment on basis of plan qualities, rather than waiting for detailed computing of estimates. Compute final estimates only.

Contractors make only about 2% profit after taxes, according to ARBA's special Task Force Report. Another 2% of the contract dollar must be set aside by contractors in the higher income brackets for incomes taxes. This leaves 96% of the contract dollar — 20% for equipment, 35% payrolls, 41% materials and overhead — for all of which the contractor must obtain financing. The National Highway Association foresees that as the National Highway Program picks up speed, the ability of the contractors to take on as much work as they could easily handle on the job, would be limited by their financial resources.

This is a particularly pertinent problem because of prequalification (only 10 highway departments do not prequalify) by which a state insists on the financial ability of low bidder to swing a project before awarding him the contract. Bonding companies, too, scrutinize a contractor's fluid assets closely before approving him for the required bonds.

ARBA believes that the obvious ways to keep contractor credit fluid would be to liberalize the retainage practices followed by the state highways departments, and speed up projuents for work completed. They say:

"We estimate that, if a state retains 10% of the contractor's earnings on a \$500,000 job, it ties up a total of \$50,000 of his money or an average of \$25,000 through the life of the contract. If partial payments are delayed, as they frequently are, by even as much as two weeks, another \$20,000 of the contractor's earnings are frozen during the life of the contract."

QED... Contractors must include these financing costs in their bids... they are forced to delay bidding (or starts) on new highway jobs until final settlement is received for previous jobs. Both of these end results create higher costs and slower progress on urgently needed-now highways.

1808-DC-1

Published in the Public Interest by:

LeTourneau-Westinghouse Company, PEORIA, ILLINOIS · A Subsidiary of Westinghouse Air Brake Company

# This truck has run over 7500 hours—and we've





OPEN PIT MINING SPECIAL-ISTS, the Isbell firm relies exclusively on Texaco lubricants to keep 17 large dump trucks, 4 shavels, 2 'dozers and 2 rotary drills on the job.

TEXACO LUBRICATION EN-GINEER R. H. Trimmer reviews lube problems with Supt. G. L. Laughton who credits Texaco Simplified Lubrication Plan with cutting maintenance costs and keeping big mining job on schedule.



# never removed the pan"

"The Texaco Simplified Lubrication Plan keeps maintenance costs down, keeps the job on schedule," reports George L. Laughton, Supt. of Isbell Construction Company's Three Kids Mine project.

Isbell Construction Company is doing strip mining on contract with Manganese, Inc., Henderson, Nevada. They are using a Texaco Simplified Lubrication Plan for this project, and it is piling up some outstanding records.

"As of January 17, the truck shown in the picture had operated 7,714 hours using Texaco Ursa Heavy Duty SAE 40 exclusively, and it's never had the pan removed," reports Superintendent Geoige L. Laughton. "We also use Texaco Crater 2X Fluid for wire rope, Texaco Gear Lube HD for transmissions, Texaco Marfak and Texaco Marfak Heavy Duty, for chassis and wheel bearings. We are entirely satisfied with Texaco lubricants," says Mr. Laughton, "and we have never had a failure due to lubrication."

For your equipment, Isbell's outstanding success with Texaco lubricants proves two things: the quality of Texaco lubricants, and the advisability of getting Texaco to work out your Simplified Lubrication Plan. Because it is tailored specifically to each job's special needs, a Texaco Simplified Lubrication Plan enables you to

handle all major lubrication with very few lubricants — as few as 6 in many cases. That keeps lubricant inventories low, and cuts down your chances of making lubrication mistakes. It also trims your maintenance expense. Above all, your equipment runs smoothly so your jobs can keep on schedule.

Ask a Texaco Lubrication Engineer to help you simplify your lubrication procedure with a Texaco Simplified Lubrication Plan. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TUNE IN . . . Metropolitan Opera Radio Broadcasts Every Saturday Afternoon



LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

. . . for more details circle 302 on enclosed return postal card

she blade makes

**ALLIS-CHALMERS** engineering in action

an Allis-Chalmers motor grader exclusive

### THE ROLL-AWAY MOLDBOARD MOVES BIG LOADS FASTER

Each portion of blade forces material toward a <u>different</u> point. Packing is eliminated. Pressure and friction against blade decreases toward top of blade — no wasted power.



### ORDINARY MOLDBOARD

Each portion of blade forces material toward a <u>fixed</u> point. Packing action causes high friction over entire blade — wastes power.

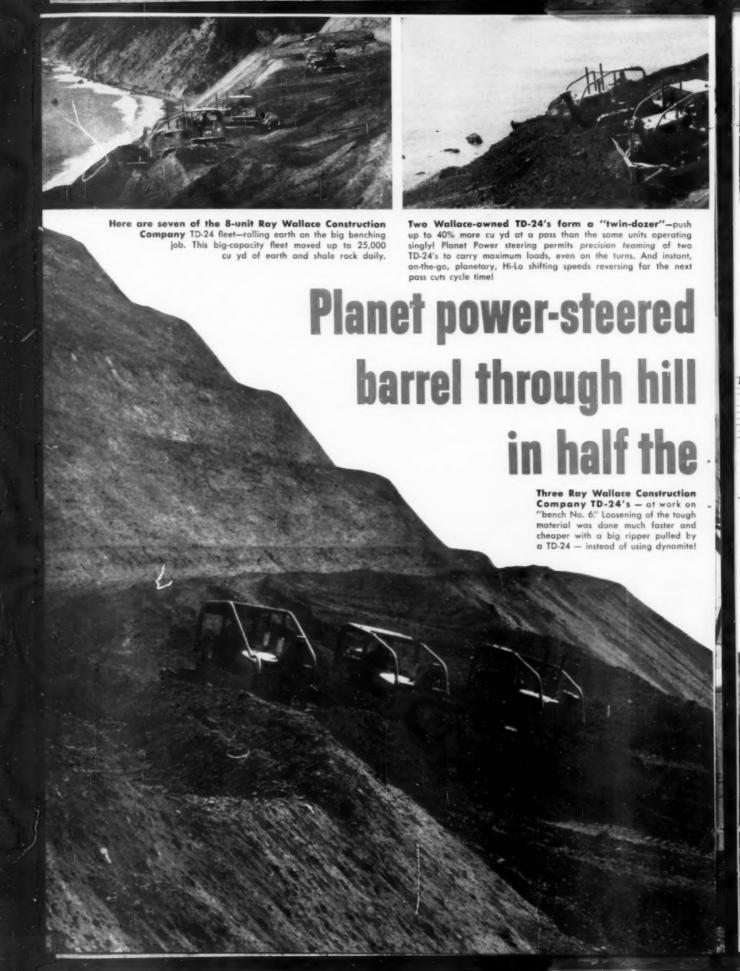
ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN



the difference

ROLL-AWAY is an Allis Chalmers trademari

HULLANA







# TD-24's benching job estimated time

Here,'s how pairs of TD-24's were enabled by exclusive Planet Power-steering and Hi-Lo shifting to operate as precision teams. They massed their combined 400-hp plus, and formed a huge U-blade that moved a gigantic yardage per push. The extra yardage equalled a "dirt-dividend" of up to 40%—compared to two dozers, operating singly!

"When I get bigger and tougher jobs, I just get more International TD-24's," states contractor Ray Wallace. "In a tight road-building schedule, our first TD-24 cleared its purchase price in only 28 days; was first overhauled at 8,700 hours. None of our equipment has lost time here, and we've cut the engineer's estimate in half! You can't get better performance than this."

# How International power exclusives give you a new basis for getting and fulfilling profitable contracts!

A series of seven huge benches had to be carved around this 350-foot-high hill—to rid California Rt. 1 of a dangerous slide area, near Rockdale.

Each self-draining bench is 50' high, and 20' wide on top. 800,000 cu yd (25% earth, 75% shale rock) had to be moved, primarily in curved "passes."

Ray L. Wallace Construction Co., Westport, California, won the contract by basing his bid on Planet Power-steered TD-24 performance and its proven ability to move and "hold" bonus yardage loads on turns as well as straight-aways! And his eight TD-24's did the job in only half the time the engineer estimated!

### The difference: BIG TD-24 power exclusives

TD-24 power exclusives can often help you "run power circles" around conventionally steered, and geared king-sized crawlers!

Proven Planet Power steering, for example, eliminates "dead track drag" on the turns—gives full-time "live" power on both tracks while turning—enables the TD-24 to pull or push as big a load on the turns as on the straight-aways. Extra yards per pass mean bigger bonus yardage per day!

Cycle-speeding, TD-24 Hi-Lo shifting permits instant, on-the-go speed-changing—to faster or slower, either in forward or reverse. Instant speed adjustment to the load without stopping takes full-time advantage of full power! And planetary Hi-Lo shifting speeds up TD-24 shuttle-dozing cycle time—increases the number of passes per hour; thus increases TD-24 capacity!

See for yourself how these and other International TD-24 power exclusives arm you with a new, job-getting, profit-building basis for getting and fulfilling contracts. Ask your International Construction Equipment Distributor for a TD-24 demonstration!



International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: crawler and Wheel Tractors...Self-Propelled Scrapers...Crawler and Rubber-Tired Loaders....Off-Highway Haulers...Diesel and Carbureted Engines...Motor Trucks...Farm Tractors and Equipment



Pouring concrete in strips 12 feet wide on a new expressway, Koehring 34-E twinbatch paver averaged 1100 feet per 8-hour day. 10-inch slab consisted of 8-inch mesh-reinforced base, 2-inch top course.

PLAN YOUR SPREAD FOR

### the heavy paving program ahead

Long-range outlook on the extensive road program, and new "jet-age" airbases, indicates a steadily-rising curve of construction activity in all areas. It also indicates plenty of paving business ahead for the contractor who is in a position to compete favorably in the bidding, and who can profitably complete contracts on schedule.

In planning your equipment spread, you can't afford to gamble on the production end of your job—at the paver, where every second counts. That's where the reserve production capacity of a Koehring 34-E twinbatch® protects your schedules and profits. It hits a top output of 86.7 batches an hour, on 60-second mixing cycle. This lets you pick up any lost time, when you need it, to offset normal job and material delays—maintain a high average speed throughout duration of the job—keep batch

plant, trucks and finishers working at peak efficiency. With twinbatch Autocycle control, every mixing operation is automatic, accurate, and fast. Drum charging, mixing, transfer and discharge are all synchronized by Koehring Batchmeter, a simple timing device. 8-second skip-hoist speeds charging. Big, double-door bucket and wide-swinging boom speed concrete distribution on the grade. What's more, accessibility of every paver maintenance point, plus heavy-duty construction, all help to keep paving jobs rolling on schedule.

You'll find there's no substitute for the steady output, speed and economy you can get with 34-E twinbatch pavers on your big-production highway and airport contracts. Talk it over with your Koehring distributor. He has more information that will interest you. Why not call him today?

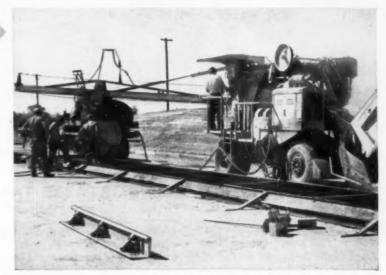
### 34-E twinbatch team works side-by-side on big U. S. airbase

Widening runways on a military airstrip, contractor completed job "on the double" with a pair of big Koehring 34-E twinbatch pavers. Notice how one long-boom 34-E poured the outside half, while the other poured the inside half of the strip. For balanced, high rate of production at both ends of the job, many contractors team up twinbatch pavers with C. S. Johnson automatic batch plants (another Koehring product worth checking). Clamshell cranes, finishers also available in big Koehring paving "package".



### Mobile 16-E paves centerstrips, intersections, bridge-approaches

On street and highway jobs, there's always extra concrete to be laid in addition to the main slab, such as curbs, gutters, center-strips, scattered intersections, approaches to driveways, bridges and side-roads. Consider the time-saving flexibility you can get with a rubber-tired twinbatch in your paving spread. This Koehring 16-E is as mobile as your batch trucks - can get back on the new slab in as little as 7 days to do clean-up work, or pave adjoining strips. Also has high elevated discharge, pours into overhead hoppers, forms, chutes. You'll find its usefulness unlimited as a utility unit . . . or as a general-purpose paver.



### ... for more details circle 277 on enclosed return postal card ROADS AND STREETS, January, 1958

### "Timely" precision-finishing -

is important on every paving job. Operating at almost twice the speed of a 34-E paver, Koehring Longitudinal Finisher handles all practical consistencies of concrete — harsh, wet or dry — produces smooth, mechanically-accurate slab with uniform crown transitions.





### ... MOST EFFICIENT PORTABLE TANDEM ROLLER MADE!

Hydraulically powered towing wheels "fold away" into the main frame to give the new 4-6 ton Buffalo-Springfield\* Model KT-8 Portable Tandem Roller profit-making advantages never before offered in any other roller!

The KT-8's exclusive "fold away" feature permits maximum ground clearance . . . and completely eliminates excessive overhang! The KT-8 can work in tight corners . . . around obstacles . . . up against high curbs and forms . . . without removing the wheels. And the new "fold away" design lets the operator actually see his work at all times!

Hydraulically powered towing

wheels save time, save money-on every job. The KT-8 is ready for transporting in minutes . . . and ready to go to work just that fast at the next job site!

There are other profitable features, too. Torque converter drive automatically matches power to grade and material variations . . . permits infinitely variable speeds from 0.5 to 5.3 mph in either direction. Heavyduty, high-speed, low-torque clutches provide smooth reversing without grabbing. Wide faced bevel gears assure long, trouble-free operation. The KT-8 is built for maximum performance, dependability and durability in every respect!

Buffalo-Springfield also offers a new 3-5 Ton Model KT-7A Portable Tandem Roller. The KT-7A does not include hydraulically powered towing wheels but offers towing attachment as optional equipment. The attachment includes towing hitch with hydraulic jack, stub axle assemblies with pneumatic-tired wheels, and wedge blocks.

\*Trademark Reg. U.S. Pat. Off.

NEW, illustrated booklet gives complete information on the sensational new Model KT-8. Get it today from your Buffalo-Springfield Distributor or write direct.

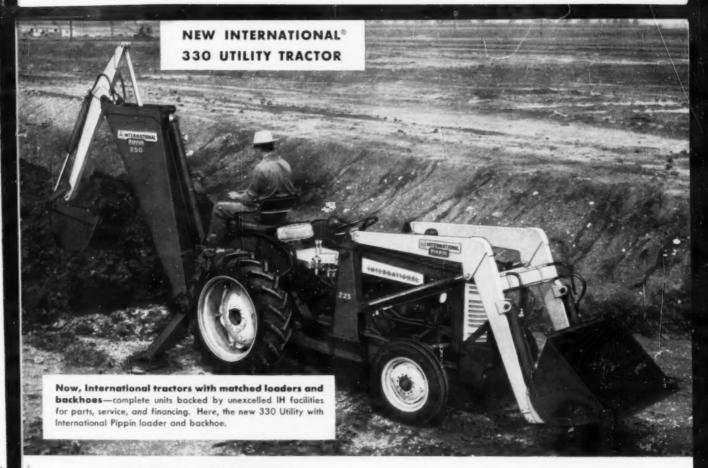




### O-SPRINGFIELD RO

ION OF KOEHRING COMPANY . SPRINGFIELD, OHIO

for more details circle 243 on enclosed return postal card



# BEEF'

### than ever before in a 35 hp rig!

It's terrific for trenching, loading, 'dozing! Now you can get an International tractor in the economical 35 hp class, with strength and stamina for high capacity and low maintenance. The new International 330 Utility has up to 900 pounds greater built-in weight than other tractors of similar horsepower—really rugged construction! Handle 1,000 pounds with a front-end loader, lift 4,000 pounds with rearmounted fork, dig faster with heavy-duty backhoe.

ALL the work-easing features of larger IH tractors are available—10 speeds forward with Torque Amplifier drive . . . power steering . . . job-tailored Hydra-Touch equipment control . . . Fast-Hitch.

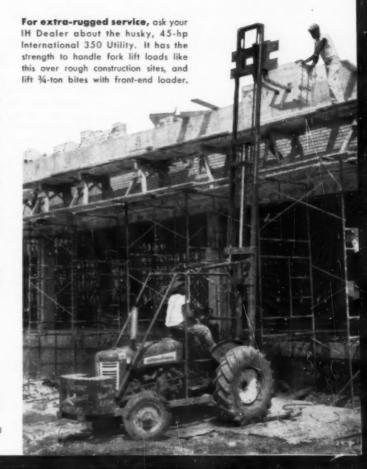
See how heavy-duty design can cut your costs! Phone your IH Dealer. He will be glad to demonstrate. For free catalog, write International Harvester Co., Dept. RS-1, P.O. Box 7333, Chicago 80, Ill.

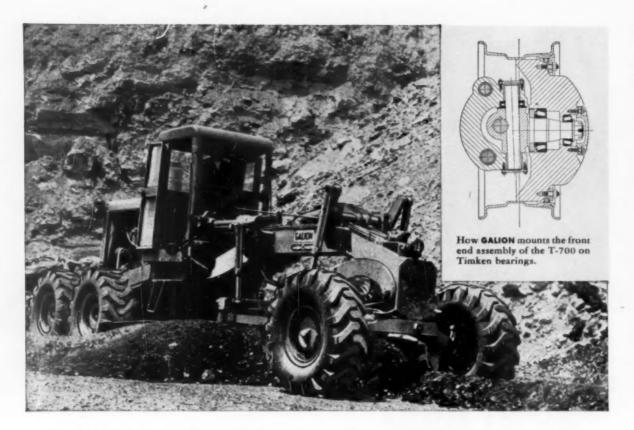


### SEE YOUR INTERNATIONAL HARVESTER DEALER

International Harvester Products pay for themselves in use form Tractors and Equipment...Twine...Commercial Wheel Tractors...Motor Trucks...Construction Equipment—General Office, Chicago I, Illinois

. . . for more details circle 270 on enclosed return postal card





# World's largest motor grader weighs more than 20 tons—24 TIMKEN® bearings take the load

THE world's largest motor grader (above) sets up enormous loads as it slams a road into shape. And when it rolls on a steep grade, the thrust loads are even greater. To make sure their T-700 Grade-O-Matic could take all the loads, the Galion Iron Works & Manufacturing Company specified 24 Timken® tapered roller bearings—for the reverse gear case, transfer case, front wheels and king pins, and the rear wheel tandem drive.

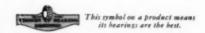
The tapered construction of tapered roller bearings lets them take all combinations of loads—thrust as well as radial. And because they're case-carburized to produce hard, wear-resistant surfaces over tough, shock-resistant cores,

Timken bearings take the shock loads of heavy construction work. And full line contact between rollers and races gives them extra load carrying capacity to stand up to the job day after day, season after season.

Timken bearings are geometrically designed to provide true rolling motion—precision manufactured to live up to their design. They practically eliminate friction. And by holding shafts concentric with their housings, they make closures more effective—keep lubricant in, dirt out.

And to make sure we control the quality of Timken bearings all the way down the line, we even make our own steel—an extra step no other American bearing manufacturer takes.

Make sure you get all these advantages in the machines you buy or build. Specify Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".





TIMKEN

TAPERED ROLLER BEARINGS ROLL THE LOAD

TRADE-MARK REG. U. S. PAT. OF

### ROADS AND STREETS

Sixty-Five Years of Editorial Leadership

### Washington News Letter



### By Duane L. Cronk

January 10, 1958

The "arbitrary" disqualification of a contractor in Vermont has led the Bureau of Public Roads to protest and to withhold federal aid funds. The fracas began several weeks ago when W. H. Hinman, Inc., of Maine, won a \$3½ million contract from the Vermont state highway department. Shortly thereafter, in seeking aggregate sources, it discovered that another competing bidder had already thoughtfully staked out an option on a key pit and was unwilling to relinquish it for free. The competitor - S.J. Groves of Minnesota - had some time previously checked out the pit in question, obtained a 90-day option from the owner (for \$2,000), and otherwise prepared to assure itself of a source of material, should it be successful in placing the low bid. Having lost the construction job, however, it decided to either exploit the pit commercially or sell its rights and equipment to the low bidder for a price.

Hinman protested, reportedly, that he was being held up, that this was out of line with "local custom" and that such sharp business practices should be outlawed. The state apparently agreed and told the Grove firm it was personna non grata. Grove carried his case to the federal government, however, and found a champion. Federal Highway Administrator Bertram Tallamy shut off federal funds (90% of the cost) on all projects from which Groves was barred as a bidder.

Vermont officials have built up quite a case against federal intervention into "states' rights," but the Bureau is standing firm. It has some definite ideas on preserving competitive conditions in the industry and looks with a very suspicious eye on disqualification of contractors for any but the soundest reasons. As one top official put it:

'We can't afford to let the principle of competitive bidding be arbitrarily bandied about. We don't believe contractors should be barred from bidding if they meet the established criteria of possessing enough equipment to do the job, if they are experienced and if they are responsible businessmen. We don't construe the failure to observe 'local custom' as justification for disqualification. If this sort of thing went unchecked, it might become 'local custom' to require contractors to buy materials from favored sources or to pay his men on Tuesdays."

A standard pavement mixing specification is being sought by the Bureau of Public Roads. The mixing time required by state highway departments ranges from 50 seconds per cycle to 150. Sixty-second cycles are common in two-thirds of the states, but in the others, contractors crossing state lines face somewhat of a production estimating chore. They want a uniform specification. "If 60 seconds is good enough for one state, it ought to be good enough for the state next to it," they say.

A federal specification for motor graders is being written by the Bureau, also. To be used by all federal procurement officials, the new spec will be based on rim

(continued on next page)

pull or blade pull in all forward gears. Existing requirements differ widely now and some are based on horsepower at various speeds and weights.

\* \* \*

Roadbuilders are converging on Washington this month for ARBA's annual convention. Some 2,100 highway contractors, officials, and materials producers are expected to attend sessions (Jan. 20-23) devoted to industry problems. Among other things, the roadbuilders will hear federal and state officials describe work prospects for next year under the quickly accelerating National Highway Program, explore ways to step up contract lettings, and review progress being made to obtain "performance" specifications and other improved contract procedures.

The expanding highway construction industry has sparked a boom in new ARBA memberships, Burt Miller, deputy executive vice president, reports. Last year saw a 20% jump in the membership roll.

\* \* \*

Much of the uncertainty about the size of the roadbuilding market over the next few years will be eliminated if the Bureau of Public Roads is successful in obtaining the comprehensive schedules it will soon ask the states to submit.

Roads and Streets has been particularly concerned about the lack of knowledge about how fast the right-of-way acquisition and engineering are proceeding just now. The pace of such operations today will determine how much work the contractor can expect in the months ahead. Such figures will be available under the new compiling system the Bureau wants to set up.

BPR will ask the state highway departments to submit complete schedules of projects to be undertaken during the next five years. The agency wants to know: When will right-of-way acquisition be started? When completed? When engineering plans will be ready? When grading contracts will be let? When structures will be constructed? When paving begun? For the succeeding 10 years, the Bureau will ask only for a grouping of projects to be undertaken by five-year periods.

Contractors would benefit because, BPR believes, such a program would encourage the states to eliminate "boom-and-bust" scheduling of grading work, paving work, or any of the other specialties. The result would be a much more orderly materials and equipment market for national firms as well as local producers, enabling it to expand as needed. The highway departments would benefit by having a checklist that could give them a true picture of progress at a glance.

The lack of an assured flow of roadbuilding money heretofore has made such a programming impossible. Now, however, with a more substantial base of federal funds under highway construction, state highway departments can develop practicable priority schedules. (The American Automobile Association in annual convention recently urged that state highway departments develop five-year programs. California already does.)

\* \* \*

The Senate wants to know how fast and far the highway program is going.

Senator Gore told Roads and Streets last month he will call for a report from

Secretary of Commerce Weeks and Bertram Tallamy on January 8 . . . Robert "Fats"

Everett, Tennessean, has announced his candidacy for the vacancy left when Congressman Jere Cooper passed away last month. Everett, a well-known "good roads" advocate, is expected to win the election with ease.

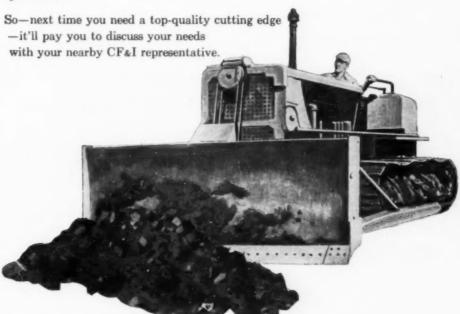


# CUTTING EDGES

for building superhighways ...

... or any other type of tough earth-moving job, you'll find that CF&I Cutting Edges are ideal.

For CF&I makes a full line of cutting edges for every type of earth-moving equipment-cutting edges that are tough enough to give long service no matter how tough the terrain. CF&I Cutting Edges are available in a wide variety of lengths, widths, thicknesses and hole spacings; flat or curved; with beveled or square ends.





5095

Albuquerque · Amarillo · Atlanta · Billings · Boise · Boston · Buffalo · Butte · Casper · Chicago · Denver · Detroit · El Paso · Ft. Worth Houston · Kansas City · Lincoln (Neb.) · Los Angeles · New Orleans · New York · Oakland · Oklahomo City · Philadelphia Phoenix · Portland · Pueblo · Sult Lake City · San Antonio · San Leandro · San Francisco · Seattle · Spokane · Wichita for more details circle 251 on enclosed return postal card

Only with Link-Belt Speeder Full-Function design...

### all these features



### Exclusive Full-Function Design

Each of these functions, as keyed above, operates with its own power train and therefore independently of all other operations. This design permits more versatility . . . , assures longer life.

#### STANDARD FEATURES

- Full power hydraulic
  controls
- Mydraulic power steering
   Independent rapid

LS-98

OTHER 1-YD. MACHINES"

RIG A | RIG B

- Independent rapid boomhoist
- Fully interchangeable, self-adjusting clutches
- Two-speed travel in either direction through gear reduction

#### OPTIONAL FEATURES

- Reversing clutches for one drum
- Reversing clutches for both main drums
- Boom lowering clutch
   Third drum without re
- stricting any other function

  Independent swing and
- travel without restricting
- Torque converters

\*Ask your Link-Belt Speeder distributor for the facts behind this comparison.

### Get a profit bonus with these standard features... tailor the machine to the job with these optional features

Exclusive with Link-Belt Speeder—revolutionary Full-Function design provides a separate power train for each machine function.

That's why you can have and use all these 11 major features on the same machine—without restricting other operations.

#### Practically double power train life

And that's why Full-Function design spreads wear over more clutches, shafts, gears and bearings. Only the power trains in use are under load!

But this is only one of the many Link-Belt Speeder advantages. You also get—

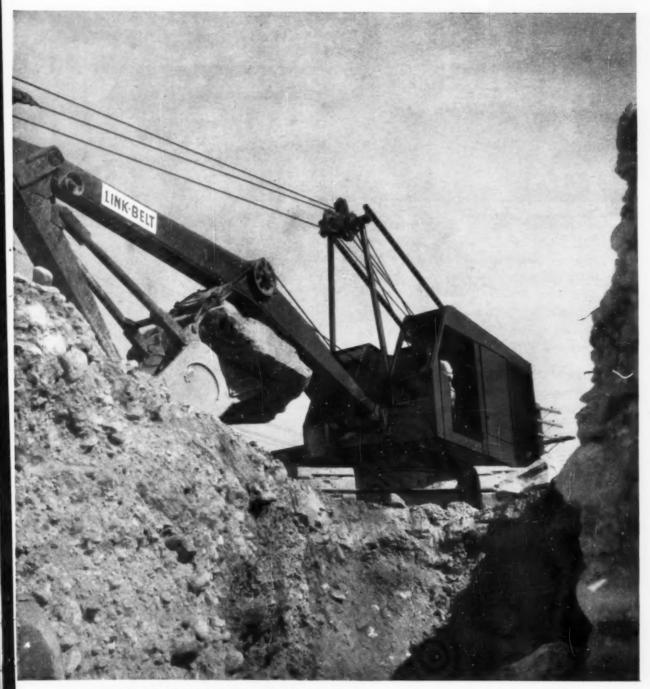
- Greater usable horsepower
- Speed-o-Matic—proven power hydraulic controls
- Bonus crane capacity working with long booms at extended radii

For complete details, contact your distributor. Or write Link-Belt Speeder Corporation, Dept. RS-158, Cedar Rapids, Iowa, for Book No. 2553.

LINK-BELT SPEEDER

It's time to compare . . . with a Link-Belt Speeder

# on one shovel-crane



. . . for more details circle 278 on enclosed return postal card

### "2-way radio is our <u>best</u> and <u>lowest</u> cost maintenance-construction tool"

SAYS NORTH H. NEWTON, CHAMPAIGN COUNTY ENGINEER, URBANA, OHIO



Foreman, miles away, gets question answered in minutes, not hours.

Radio operator Lewis Metherd checks location of sudden snowfall, prepares to shift crews.

Radio-equipped foreman checks garage in seconds about needed repairs.

"Fast and quick communication is just as essential to any highway department as it is to a military commander. And, for the past 2 years, Motorola 2-way radio has given us just that—multiplying our efficiency and productivity every day of the year.

"With all crews and foremen in constant touch with each other and the dispatcher in our office, information can be passed along in minutes, no matter where they are. Hours, even days, can be saved in meeting emergencies, and everyday work is handled with no lost motion and no waste time. Costly crews and equipment are shifted from job to job while still in the field. Snow removal, bridge repair, washed out roads,

black topping, equipment breakdowns—all are taken care of faster with the help of our Motorola radios. And better service means better public relations too, a valuable asset anytime.

"I could fill a book with stories on how radio has saved us time and money. It's the most inexpensive piece of equipment you'll ever buy ... so low you can't afford to be without it. The closer knit organization you'll have will give you better control over all your operations, and actually save you money at the same time."

What stronger recommendation for 2-way radio can there be? Investigate, and find out how *Motorola* 2-way radio can help you do the job better and at a lower cost.

### MOTOROLA

2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC. A SUBSIDIARY OF MOTOROLA, INC. 4501 AUGUSTA BOULEVARD • CHICAGO ST TELENOIS



Motorola consistently supplies more mobile and portable radio than all others combined.

Proof of acceptance, experience and quality.

The only COMPLETE radio communications service specialized engineering...product...customer service...parts...installation... maintenance...finance...lease.

"The best costs you less-specify Motorola."

. . for more details circle 281 on enclosed return postal card

# Profit-Paying WAUKESHA POWER

FOR CRANES AND SHOVELS





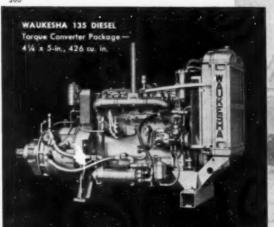


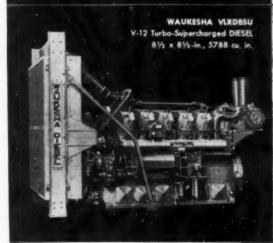


MICHIGAN



240





Complete size range to 1235 hp ... all standard fuels.

Manito 100













WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

. . . for more details circle 305 on enclosed return poetal card



### Another road-builder proves:

# ...4-in-1 four-machine utility can replace a flock of other equipment!

On a \$270,000 street improvement project, Salt Lake City contractor, R. C. Bradshaw Construction Co. has proved you can replace several other machines—with one International Drott 4-In-1!

One minute, their TD-14 4-In-1 is a boulder-bucking, earth-rolling, tree-grubbing bulldozer. Next instant, it's a 2½-cu yd Skid-Shovel, out-digging a back-hoe—and out-loading 'em all!

Move the machine-selector lever again—and the 4-In-1 is a "carry-type scraper" that does finish grading with inch-close accuracy. And fingertip easy, you get 4-In-1 clamshell action for fast clean-up, bank-shaping, ditch-digging, or stock-pile loading!

Or at a hydraulic command, the 4-In-1's scarifier

attachment can be ripping asphalt or hard soil.

Exclusive pry-action break-out puts the 4-In-1 on tough jobs where less powerful diggers don't belong. Exclusive ground-level roll-back and exclusive parallelogram raise action make another "heap of difference" in favor of 4-In-1! And shock-swallowing Hydro-Spring gives the 4-In-1 performance protection no other make has!

Why buy-up and tie-up a flock of limited-duty equipment that one 4-In-1 can profitably replace? Yes, and with one perked-up operator giving you versatility unlimited! Send for a 4-In-1 catalog—see your International Drott Distributor for a 4-In-1 demonstration!



Send for free catalog today

Sentlemen: I am	interested	in facts	on the	4-In-1	for	use	in
Road building	Prod	lucina a					

Soil conservation Home and industrial construction

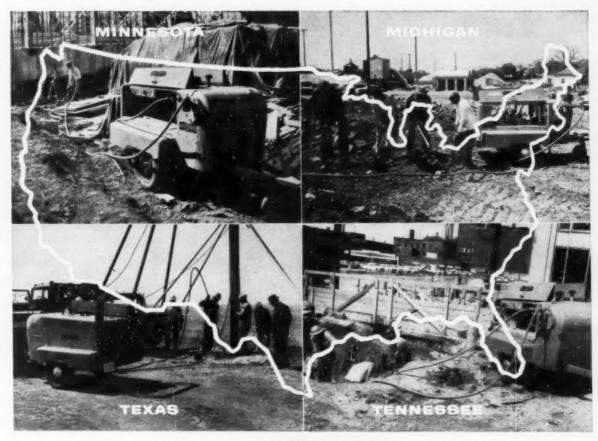


International Harvester Company, Chicago 1, Illinois Drott Manufacturing Corp., M'Iwaukee 15, Wisconsin

INTERNATIONAL.

DROTT \*\*

. . . for more details circle 273 on enclosed return postal card





### Your dependable Portable ... on the job nationwide

For the work-hard-and-move-fast jobs you need a really reliable portable compressor. And that means the JOY Rotary RP-125. . . it's proving every day, all over the country, that it can handle your jobs faster, with minimum maintenance and downtime.

RELIABILITY The Joy RP-125 gets on the job quick and stays with it. No complaints about the weatherhot or cold. This rugged machine was designed and built to supply air dependably anywhere in the country . . . a real heavy-duty machine that can stand up under tough service.

ECONOMY Here's a Rotary that takes the bumps, tows like a shadow and saves fuel by matching output to demand from 0 to 100% of capacity. Set the dial on

the new Servair Demand Control . . . it's simple, foolproof ... and the Joy RP-125 delivers the pressure needed. A real plus: the exclusive Joy Thermal By-Pass Oil Circulating System eliminates time-waste with a fast warm-up; provides warm oil at the start—no need to run the machine for several wasted minutes in cold weather.

ACCESSIBILITY Here's an attractive, clean-styled Rotary Portable that you can get at, service easily, without skinned knuckles and bruised shins.

• If you want top air-supply efficiency on your small jobs, now is the time to see the Joy RP-125. Talk to the Joy Distributor nearest you, or write to Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa. In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario.



EQUIPMENT FOR CONSTRUCTION . . . FOR ALL INDUSTRY



WRITE FOR FREE BULLETIN 200-86



PORTABLE AIR







. . . for more details circle 276 on enclosed return postal card



### ANNOUNCING **NEW ONE-YEAR WARRANTY** ON ALL Lacrosse Trailers!

Thanks to the trouble-free performance of thousands of LaCrosse low-bed trailers, on literally millions of tough hauling jobs, you now get a ONE-YEAR FAC-TORY WARRANTY on every new LaCrosse trailer you buy.

This not only means that you gain the important advantages of patented frame design and specially engineered running-gear, which have made LaCrosse the leader in low-beds for over 25 years. It also enables you to protect your trailer investment, with the most liberal warranty in the heavy equipment industry.

So why gamble with untried or unwarranted trailers you can't be sure of, when you can get proven La-Crosse dependability - plus a ONE-YEAR warranty - at no extra cost. Over 80 different models 6 to 75-ton capacity - with flat, drop or tilting platforms - integral or removable goosenecks.

		Trailers (	ept. A115, LaCrosse, Wis. on capacity)
Std. L	ow-Bed	☐ Tilt-Type	Removable Gooseneck
☐ Send	name of nearest	LaCrosse Trailer Distribut	for
	Name		Title
	Employed b	y	
	Address		
-	City		State
Heavy	- A		1-1-1

... for more details circle 279 on enclased return postal card

#### Cover Scene

The cover picture this month shows a Jackson Multiple Vibratory Compactor at work on contract section T-12 of the Illinois Toll Highway near Libertyville, Illinois. This machine was used as the chief, if not sole, compaction tool for the 10-in, selected material subgrade and for the 4in thickness of granular subbase specified immediately under the 10-in. concrete pavement. No steel wheel rollers were used at any time. A portion of the subgrade lift was at first rolled with the help of a pneumatic roller.

Section T-12, comprising about 12 miles of dual highway and interchanges is being constructed by Gust K. Newberg and Hoyle-Newberg, Chicago contractors. The subgrade and subbase lifts were placed and rolled by Bloss Sand and Gravel Co. of Salem, Wisconsin under a subcontract. About 32 percent of the paving was completed during the 1957 autumn months following a remarkably fast handling of some 5,500,000 cu. vd. of grading despite wet summer weather (Roads and Streets, October, 1957). Concrete paving also was pushed at high speed and the equivalent of more than eight miles of two-lane paved roadway completed largely between Labor Day and the winter shut-down.

### New Trucks Being Designed For Use on Superhighways

Highway planners and builders will be interested in reports of new truck designs being tailored to the modern superhighway system. The GMC Truck & Coach division announces it is working on "super trucks-a complete and radical departure from traditional truck design as we know it today."

Included among the new features envisioned are: less weight and greater strength; more cargo space -cubage-under the same length, width and height restrictions; new engines with higher performance, longer life, greater economy-yet more compactness, and foolproof, wearproof brakes.

New types of power transmissions will outdate complicated auxiliary gear boxes and multi-speed axles. Also sought is more comfort for the driver, more built-in safety features, and new suspension systems.



### AMERICAN BRIDGE uses truck cranes on Mackinac Bridge construction

Construction of the Mackinac Bridge called for accurate crane work in extremely close quarters. For the job the American Bridge Division of United States Steel used two, highly maneuverable, 35-ton P&H "555" truck cranes. They laid the bridge flooring with precision and speed to assist in meeting the November 1st opening date.

#### HERE IS WHY PAH SATISFIES USERS:

- P&H planetary boom hoist lowers the boom under power for real precision work.
- Boom motions are smoother and faster with P&H hydraulic controls.

- P&H larger brakes give better braking action.
- P&H live roller circle provides faster swings.

Skilled operators get more work out of the 555A-TC than from any other machine in the 35-ton class. It delivers more production on every job for higher earning power. That's why when owners and operators get together, they agree on P&H.

### HARNISCHFEGER

Construction & Mining Division Milwaukee 46, Wisconsin

. . , for more details circle 266 on enclosed return postal card

## Pick your favorite with a "Jimmy" Diesel

**GM DIESEL ENGINES POWER 25 MAKES** 





### OF SHOVELS, CRANES AND HOISTS



Leading manufacturers offer General Motors Diesel power in 156 different models of shovels, cranes, draglines and hoists—shovels from 3/8 yd. to 31/2 yd.; cranes and hoists to 250-ton capacity.

Because these modern 2-cycle Diesels deliver power at *every* piston downstroke, they pack more usable power in less space. They start easily and pick up under load fast—maintain constant speed which pays off in easier digging and hoisting, faster cycles, high production and bigger profits.

Both single and multiple engine units are available with either mechanical or torque-converter drives—and with optional Hydrostarter which gives you positive, split-second starts, and eliminates the troubles and expense of electric starting systems.

When you standardize on GM Diesel power in your equipment, you get work done faster at less cost—lower initial cost, lower maintenance cost, lower parts cost. A single inventory of interchangeable parts serves all engines in a series—so you can operate with lower inventories and with far less time out for servicing.

And you have the backing of a worldwide network of GM Distributors and Dealers—with complete parts stocks and service facilities readily available everywhere.

Whatever excavator, crane or hoist you buy, you're money ahead with a "Jimmy"—it's the world's thriftiest Diesel!

DETROIT DIESEL ENGINE DIVISION OF GENERAL MOTORS, DETROIT 28, MICHIGAN

REGIONAL OFFICES: New York, Atlanta Detroit, Chicago, Dallas, San Francisco

IN CANADA:
GENERAL MOTORS DIESEL LIMITED
London, Ontario

Parts and Service Worldwide



### IT PAYS TO STANDARDIZE ON ...

Available in 1485 applications of power equipment built by more than 175 manufacturers

. . for more details circle 262 on enclosed return postal card

### Meetings

American Road Builder's Association
—Annual Convention, and Exhibit
of Materials and Supply division,
Sheraton-Park Hotel, Washington,
D. C.; Jan. 20-23.

Associated Equipment Distributors— 29th Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.; Jan. 26-30.

AMERICAN INSTITUTE OF TIMBER CON-STRUCTION—Sixth Annual Meeting, San Marcos Hotel, Chandler, Ariz.; Jan. 20-24. NATIONAL BITUMINOUS CONCRETE ASSO-CIATION—Annual Meeting, Hotels Sands, Sahara and Flamingo, Las Vegas, Nev.; Feb. 4-6.

Associated General Contractors of America—Annual Convention, Statler Hotel, Dallas, Tex.; Feb. 9-15.

NATIONAL SAND AND GRAVEL ASSOCIA-TION—Annual Convention and Exposition, Conrad Hilton Hotel and Chicago Coliseum, Chicago, Ill.; Feb. 10-13.

NATIONAL SOCIETY OF PROFESSIONAL EN-GINEERS—Spring Meeting, Michigan State University, East Lansing, Mich., Feb. 13-15. ASSOCIATION OF ASPHALT PAVING TECH-NOLOGISTS—Annual Meeting, Sheraton Mt. Royal Hotel, Montreal, Quebec; Feb. 17-19.

MISSISSIPPI HIGHWAY CONFERENCE— Fourth Annual Meeting, University of Mississippi; Feb. 20-21.

AMERICAN CONCRETE INSTITUTE—Annual Convention, Morrison Hotel, Chicago, Ill.; Feb. 24-27.

ILLINOIS HIGHWAY ENGINEERING CON-FERENCE-University of Illinois, 203 Civil Engineering Hall, Urbana, Ill.; Feb. 25-27.

American Society of Civil Engineers
—Winter Convention, Chicago, Ill.;
Feb. 26-28.

Association of Highway Officials of North Atlantic States—34th Annual Meeting and Convention, Hotel Emerson, Baltimore, Md.; Feb. 26-28.

ILLINOIS TRAFFIC ENGINEERING CONFER-ENCE—University of Illinois, 203 Civil Engineering Hall, Urbana, Ill.; Feb. 27-28.

Universary of Utah Civil Engineering Department—19th Annual Highway Conference, Student Union Building, Salt Lake City, Utah; March 3-5.

READY MIXED CONCRETE ASSOCIATION OF WISCONSIN—Annual Convention, Plankinton Hotel, Milwaukee, Wis.; March 10-12.

New York State Association of Highway Engineers — Annual Meeting, Manger Hotel, Rochester, N. Y.; March 26-28.

### **Utah Highway Conference**

The 19th annual highway conference by the Civil Engineering Department, University of Utah, will be held at Salt Lake City, March 3, 4 and 5 in the Student Union Building. Speakers from all parts of the United States as well as the Intermountain region will appear on the program.

### New York State Department Has Right of Way Pamphlet

As an aid in the acquisition of private property for public use, the New York State department of public works has issued a question-and-answer booklet entitled "A Report to Property Owners: Your State, Your Highways and You." The 16-page report explains how the state acquires land, what the owner can expect to get for his property, whether buildings may be moved to a new location, and other questions.



Lima Roadpacker owned by N. H. Garman & Bros., Inc., Reading, Pa. Shown working on highway widening job on U. S. 22, near Harrisburg, Pa. Work involved widening outer strips of 4-lane highway by 33-in. The trench, 9-in, deep, was first lined with a 1½-in, cushion course of screenings. The entire 9-in, lift of 4-in, stone was then tightly keyed in two passes of the Roadpacker. It took only two applications of dry screenings to fill the voids.

### "LIMA ROADPACKER DOES GREAT JOB"

says H. S. Garman

"We were looking for a better compactor," says Harold S. Garman of N. H. Garman & Bros., Inc., paving contractors of Reading, Pa., "and we really found it in the Lima Roadpacker. Before we made the purchase, we tried out the other leading makes. The Roadpacker proved to be the fastest machine of the lot, and did a better job of compacting to the state's tough specs. On one job we compacted to 97% of the solid rock weight.

"To get real speed on the job (picture above) we used the widening attachment, which permits two shoes to be hooked up one behind the other. This was very successful and allowed us to finish the operation in record time. Recently, using the complete set of six shoes, we set what we think might be another record when we compacted over 2200 tons of aggregate in an 8-hr. shift. For my money, the Lima Roadpacker does a great job."

Get all the facts on the new Lima Roadpacker write for free bulletin and see your local distributor

LIMA Construction Equipment Division, Lima, Ohio
BALDWIN - LIMA - HAMILTON

hovels . Cranes . Dragtines . Pullshovels . Roadpackers . Crushing, Screening and Washing Equipment



... for more details circle 309 on enclosed return postal card

# Roadbuilders deserve the BEST in cranes... and get it in dependable Bucyrus-Eries!



IN MASSACHUSETTS. This Minnesota contractor is working a long way from home on the Massachusetts Turnpike near Blanford. Here he uses a Bucyrustrie 38-B equipped with skull cracker to break up tough rock.

When it comes to versatile lifting cranes, roadbuilders place their confidence in Bucyrus-Erie to deliver TOP PROFITS. They know that quality is built into every piece of equipment produced by Bucyrus-Erie — proved year after year through steady accurate lifts, long machine life, low cost maintenance, easy convertibility, and unmatched dependability.

These men get an after-the-sale bonus, too — prompt, reliable service. It helps keep their machines in top performing condition . . . assures outstanding performance.

See your nearby Bucyrus-Erie distributor soon for the complete story on dependable crawler cranes. Bucyrus-Erie Company, South Milwaukee, Wis.

BUCYRUS

A Familiar Sign at Scenes of Progress



IN CHICAGO, ILLNIOIS. Following excavation of 14,000 yards of rock, this Bucyrus-Erie 51-B tackles piledriving, equipped with 80-ft boom and 120-ft. leads in construction of the Calumet Skyway for the Illinois Thruway Com-

IN KENTUCKY. Equipped with 50-ft. boom, this ¾-yd. Bucyrus-Erie 22-B switches from clamshell to concrete bucket to make a pour in construction of a concrete bridge. The job, located on the Falmouth-Morgan Road, is being done for the Kentucky Department of Highways.

IN DALLAS, TEXAS. This Bucyrus-Erie 54-B takes full advantage of its stability and accurate boom control in handling and positioning steel sections weighing from one to 10 tons. It is erecting a bridge for Texas Turnpike Authorities.





CONVERTIBLE TO

SHOVEL %-4 yards

DRAGLINE %-4 yards

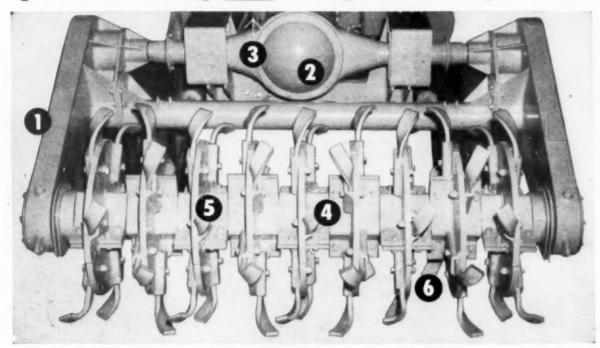
CLAMSHELL %-4 yards

HOE 3/4 - 21/2 yards

FOR A VARIETY OF EXCAVATING

... for more details circle 242 on enclosed return postal card

## If you are doing Soil Stabilization work, you know why this design is so important



The BROS Roto-Mixer's performance during the past two construction seasons has been sometimes described as truly amazing. If you know in-place soil stabilization machines and jobs, as you review the design features below, you'll readily understand why.

#### **CUTS MIXING TIME**

1. Because drives are at outside ends of the rotor shaft, even mixing is accomplished in one pass. No need of a second pass to provide uniform mixing.

Full width mixing or any increment up to 7' is easily handled. Split-disk type tool plates are quickly removed for shoulder maintenance or other narrow work.

- 2. Three-speed transmission and 150 usable HP at 1800 RPM provides a greater range of mixing speed... and mixing control which eliminates "surging" effect.
- 3. Independent hydraulic control of rotor and hood provide ample space for proper mixing to 12" depths.

Materials are uniformly blended in a smooth, even course.

#### **CUTS MAINTENANCE COSTS**

- **4.** 6" square solid steel rotor shaft easily withstands shocks and strains of in-place mixing of rocky soils.
- Split-disk type tool plates are of heavy-duty construction; quickly and easily removed or remounted.
- 6. Simplified tool holders. Heavyduty mixing tools are socket mounted, held by one bolt. Replacing worn tools is done in minutes.

You'll be glad to learn of the other important design and construction details of the Roto-Mixer. So see your nearest BROS Distributor for full information and a demonstration. Or write us today.





Road Machinery Division

### **BROS** Incorporated

(formerly Wm. Bros. Boiler & Mfg. Co.)

1057 TENTH AVE. S.E. . MINNEAPOLIS 14, MINN.

. . . for more details circle 244 on enclosed return postal card

### Personals

Harry Uhl Retires from Timber Engineering Company

HARRY G. UHL, president, Timber Engineering Co., engineering and research affiliate of the National Lumber Manufacturers Association, has retired after 37 years' service to the lumber and wood using industries. Mr. Uhl was with National Lumber Manufacturers Association for many years as assistant secretary and manager, and later was manager of American Forest Products Industries, Inc.

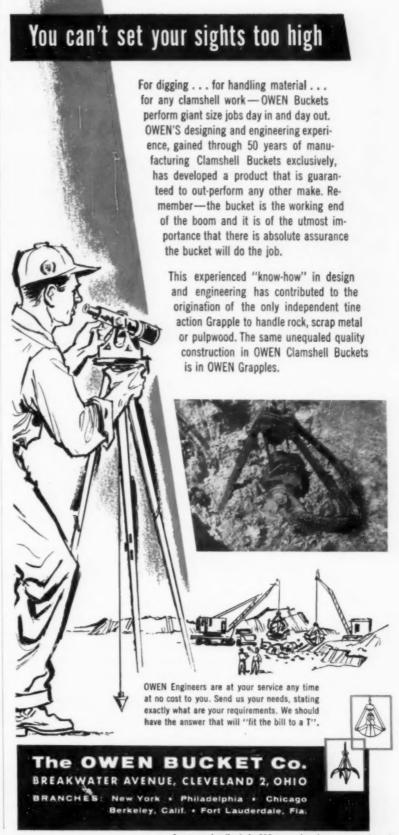
CLINTON B. F. BRILL has been named chairman of the New York State Thruway Authority, which post has been vacant since B. D. Tallamy resigned to become federal highway administrator.

In taking this \$19,500 post, Mr. Brill will also assist Governor Harriman in connection with the state construction program including public buildings as well as highways, He will work closely with John W. Johnson, state superintend of public works, whose department will continue to direct all state highway work except the Thruway.

LEO A. PORTER is appointed chief bridge engineer for Capitol Engineering Corporation, Dillsburg, Pennsylvania. With his background of chief bridge engineer for the Pennsylvania department of highways, he will represent his company in various interstate highway and bridge projects throughout eastern states and also act as a consultant on his company's foreign operations principally in South Vietnam and Indonesia.

JOHN F. LUCY, former city engineer of Schenectady, has been appointed assistant superintendent New York state department of public works, in charge of engineering and research.

E. C. Wenger, manager of the Conservation Bureau of the Portland Cement Association since 1947, retired from the Association December 1. He plans to practice as a consultant engineer in the highway and municipal improvement field. Mr. Wenger, a former Illinois state highway district engineer, has been with PCA since 1934.





### you can't beat a GRADE-O-MATIC

No foot clutch . . . no manual gear shift . . . no lugging . . . no stalling . . . no control lever "kick-back." Automatic features free operators from hard, fatiguing work, and permit them to concentrate on more efficient blade work . . . on moving more dirt in faster work cycles. Check it yourself. Write for literature.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices — Galion, Ohio, U.S.A.



. for more details circle 265 on enclosed return postal card ROADS AND STREETS, January, 1958



### for long-lived, trouble-free, tough-traffic roads

Today's concrete streets, roads and highways take a terrific pounding from an ever-increasing volume of traffic and heavier unit loads. They need all the extra strength they can summon to support such loads over longer periods without requiring extensive, expensive repairs. And that calls for steel reinforcing . . . with Clinton Welded Wire Fabric.

Clinton Welded Wire Fabric increases concrete strength, cushions vehicle impact by improving load stress distribution, retards cracking and minimizes the effects of cracking by holding the concrete tightly together, distributes shrinkage stresses during setting, and pays for itself many times over in extended trouble-free service life. It is available in a wide variety of gages and spacings for all reinforcing requirements; meets all A.S.T.M. and A.A.S.H.O. specifications. Sales offices are listed on the other side of this page.

WHEN THEY ASK ..

"is it Prinfercon

CLINTON WELDED WIRE FABRIC

THE COLORADO FUEL AND IFON CORPORATION, DENVER AND OAKLAND - WICK-VIRE SPENGER STEEL DIVISION, NEW YORK

# Clinton ded

# for long-lived, trouble-free, tough concrete pipe



The structural strength to sustain heavy external loads and internal pressures, resistance to corrosive chemical reactions, at both walls for free flow—these are some of the advantages in using concrete pipe for drainage systems, culverts and sewer lines.

And you get the assurance that these advan-

tages will be maintained for a long time where concrete pipe is reinforced with Clinton Welded Wire Fabric.

Clinton Welded Wire Fabric meets all A.S.T.M. specifications, comes in a complete range of gages and mesh sizes. For complete information contact the CF&I sales office nearest you.

WHEN THEY ASK ...



CLINTON WELDED WIRE FABRIC



5103

THE COLORADO FUEL AND IRON CORPORATION —Albuquerque · Amerillo · Billings · Boise · Butte · Desver · Bi Pase · Fr. Worth · Houston · Kanses City Uncoln (Nob.) · Los Angeles · Ocidand · Oklohoma City · Phoenix · Portiend · Previde · Salt Lake City · Son Francisco · San Leandro · Seattle · Spekene · Wichite WICKWIEE SPENCER STEEL DIVISION—Allend · Baster · Buffallo · Chicago · Detroil · New Orleans · New York · Philadelphia CF&I OFFICES IN CANADA: Montreel · Toronto · CANADIAN REPRESENTATIVES AT: Calgary · Edmonton · Venesouver · Wiemipag



#### **New Publications**

### Concrete Inspection Manual Ready for Distribution

The newest edition of the pocketsize ACI Manual of Concrete Inspection is now ready for distribution. This fourth edition contains 240 pages of descriptive material on the inspection of concrete construction. From concrete fundamentals to the latest developments in construction, it covers the problems and techniques with methods which are accepted as good practice. The manual is intended as a supplement to the usual job specifications and as a guide in matters not covered by the specifications.

This newest edition brings up to date those sections of the manual dealing with mix proportioning, winter concreting and hot weather concreting as well as general editorial revisions throughout the text.

The inspection manual was compiled to be useful to engineers, architects and contractors as well as inspectors. Written and bound for use at the construction site as well as the laboratory and design office, the text, as far as possible, tells why as well as how, is brief and readable and it interprets the policies as set forth by authorized bodies.

Available at \$3.50 per copy. Address American Concrete Institute, P.O. Box 4754, Redford Station, Detroit 19, Mich.

INVESTIGATING AND FORECASTING TRAFFIC ACCIDENTS. Bulletin 161, Highway Research Board, 2101 Constitution Ave., Washington, D.C.; price \$1.20.

This bulletin contains five papers presented at the 36th Annual Meeting of the Board, as follows: "Indexes of Motor Vehicle Accident Likelihood," by J. H. Mathewson and R. Brenner; "Driver Obedience to Stop and Slow Signs," by William T. Jackson; "Driver Behavior and Highway Conditions as Causes of Winter Accidents," by Theodore W. Forbes and Milton S. Katz; and "A Method of Investigating Highway Traffic Accidents," by Thomas G. Brittenham, David M. Glancy and Emmett H. Karrer.

AUTOMOBILE FACTS AND FIGURES. Published annually by the automo-

bile manufacturers association, this 37th edition of 80 pages contains many statistics of interest to planners and engineers. Available on request to the associations, New Center Building, Detroit 2, Mich.

PLANNING FOR PUBLIC WORKS. Illustrated booklet prepared under direction of the special assistant to the President for Public Works Planning, Washington, D. C. Contains statement on the tests for good planning, and for steps in the planning process, together with recommendations on the organization for planning.

HIGHWAY STATISTICS, SUMMARY TO 1955. A general historical summary of factual information dealing with highways, their use and financing. Published by the Bureau of Public Roads. This publication brings together under one cover a comprehensive statistical review of highway development in the United States, including all data presented in a previous summary to 1945.

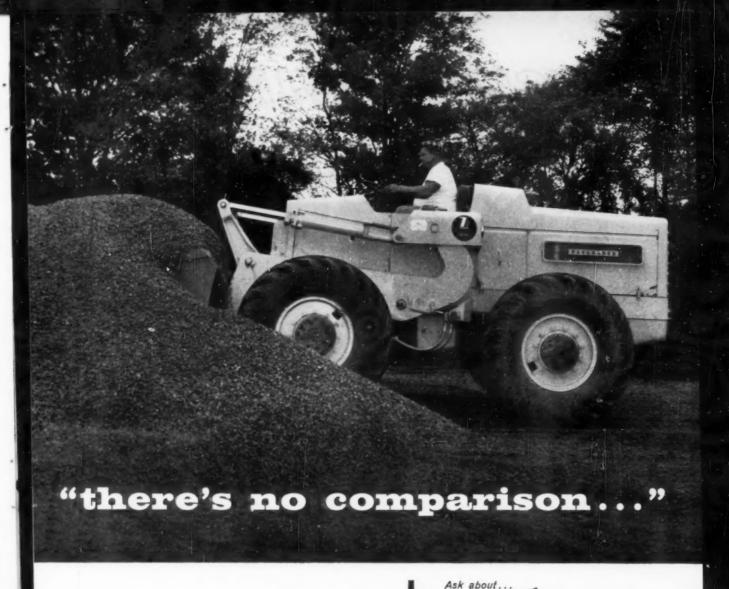
A motor-fuel section includes analyses of motor-fuel consumption, tax rates, and tax receipts. A section on motor vehicles includes tables on motor-vehicle registrations and operators' licenses, their fee schedules and the revenues received therefrom and from motor-carrier taxes; also included in this section are travel, loading and speed data. A highway finance section covers the disposition of highway-user inposts, receipts and expenditures for highways and highway debt; because of the interest in the subject, data for toll facilities are segre-

The 150 page publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at \$1.00 a copy. Orders should not be sent to the Bureau of Public Roads

Bring Out New Edition of Lessons in Arc Welding

A new second edition of New Lessons in Arc Welding has been completely rewritten and revised to include new procedures, information on latest machines and electrodes and factors in their selection, and modern teaching methods for manual arc welding. Well illustrated with pictures and drawings; 320 pages, 6" x 9" size; gold embossed, simulated leather cover: price \$1.00 postpaid in U.S.A., \$1.50 elsewhere. Publisher, The Lincoln Electric Co., Cleveland 17, Ohio.





"Our model HH 'PAYLOADER' handles an average of 100 tons per hour working a 50 foot radius loading the bins at our asphalt plant," says C. A. Pratt, plant manager of Osborne, Inc., Mentor, Ohio, who also use it on highway construction. "It has our larger, heavier loader beat in all these features ease of operation, operator safety and work-ability. There's no comparison."

G. C. Balish, the operator, says "it's built for maximum production. The roll-back bucket action is the best of any loader I've ever operated - gets a full payload every time and keeps a full load during delivery . . has maximum operator safety and operating ease. I prefer the HH any day."

Your Hough Distributor is ready to show you all the superior features of the model HH and the other two 4-wheeldrive "PAYLOADER" sizes. A demonstration will convince you that they are the finest, most productive units, size for size, in tractor-shovel history. The Frank G. Hough Co., 768 Sunnyside Ave., Libertyville, Ill.



#### **PAYLOADER**

THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

. far more details circle 267 on enclosed return postal card

PURCHASE AND

Now your Hough Distributor has at his disposal the broadest and most complete set of financing plans

ever offered: - TIME PAYMENT . LEASING PLANS\*, with or without OPTION TO PURCHASE - any and all kinds of financing to best fit your needs for the purchase of "PAYLOADER" equipment. See him today.

\* (Available in Continental U.S.A.)

#### THE FRANK G. HOUGH CO.

768 Sunnyside Ave., Libertyville, III.

Send more data on 4-wheel-drive "PAYLOADER":

- model HO (9,000 lbs. carry cap.)
  - model HH (7,000 lbs. carry cap.) model HU (5,000 lbs. carry cap.)

Title

Street.

# EUGLID"TWINS"

# whip tough conditions on Sugden & Sivier's 1,700,000 yd. road job

Two TS-24 "Eucs" move 320 yards per hour on 3300' haul with 3% adverse grade and 16 to 20% rolling resistance

On a 1,700,000 yd. highway relocation job near Jackson, Michigan, Sugden & Sivier encountered the toughest dirt conditions in their experience. Yet, they're ahead of the earthmoving schedule—chiefly because of the performance of their six Euclid Twin-Power Scrapers (two 24-yd. struck capacity and four with 18 yd. struck capacity).

Water-logged sand pockets in the clay base made loading and hauling slow and difficult. In spite of the unfavorable conditions, the all-wheel drive "Twins" bulled their way through on wet, spongy, rutted haul roads . . . and averaged 1500-1600 yards per unit per 10-hour shift.

On all kinds of jobs, in every kind of dirt, on all lengths of hauls, Euclid "Twins" are outproducing other scrapers by a wide margin—the all important profit margin. More and more successful bidders are figuring their estimates on "Twin" productive capacity. See your Euclid dealer soon for additional details and proof that Euclids are your best investment.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Charles T. Sugden says,

"Euclid manufactures the best earthmoving equipment available today."





# "Downtime is negligible on the Twins"

That's the opinion of Mr. Sugden, a 34-year veteraninearthmoving. And, there's good reason for the high availability of "Eucs". Strength and durability are designed in and built in to every unit as a result of over 25 years of experience in building heavy construction equipment. Major components are job-proved over many years—and they're easily accessible for quick service or replacement to save downtime.

Independent hydraulic control of apron and ejector on the big "Twin" assures instant response to simple control levers . . . permits fast, controlled spreading of the load . . . eliminates expense and downtime caused by cable breakage. Interchangeable, reversible four-section cutting edge can be adjusted for best loading in various materials.





With 300 h.p. engine in the tractor and 218 h.p. behind the bowl, separate Torqmatic Drive and NoSpin differential for each drive axle, the TS-24 "Twin" cuts cycle times even under the most adverse job conditions.

# Euclid "Twins" are moving the cheapest dirt!

. . for more details circle 261 on enclosed return postal card



EUCIId Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE



# LETTERS To the Editor

By letter to the Editor from Arthur F. Beck, Designing Engineer, Texas Highway Department, Austin.

The article by Mr. Edwin J. Coppage, Jr. in the August issue of Roads and Streets about an experimental prestressed concrete pavement is very interesting. I note that the method of prestressing proposed by Mr. Coppage (prestressing by jacks instead of by high tensile strength wire) is similar to that used in France and Africa in Airfield

construction. (See Engineering News Record, October 27, 1955, p. 34-40). The use of a conventional type pavement with corrugated metal contraction joints as an anchoring slab sounds good to me since it serves as part of the pavement as well as being an achor. It seems to me though, that there will be some prestress loss when this anchoring slab contracts after it has reached its maximum expanded position. It will be necessary, therefore, to make adjustments in the prestressing in a year or so to compensate for this loss. If additional prestress is added initially for this loss, then a longer anchoring slab will be required.

There seems to be some question in my mind as to the need for contraction joints at 100-ft. intervals in the prestressed slab. .Mr. Coppage explains that they are needed to control shrinkage cracks which occur before prestressing. Experience in Texas indicates that shrinkage cracks form at about 15 ft. to 20 ft. intervals. Even so, I do not believe that shrinkage cracks, (whether 15 or 100 ft, apart) will be harmful to a prestressed pavement and would suggest that the metal contraction joints be omitted in the prestressed slab. I would also space the metal contraction joints in the anchor slab at a uniform distance of either 15 or 20 ft. rather than at 15, 20 and 30 ft. as pro-

When wires are used to prestress, subgrade friction consumes a sizable portion of the prestress in long (Continued on page 50)

LIKE





# ROGERS Hydraulically-Operated

# DETACHABLE TRAILER

CAN YOU unload, reload and be moving again in as little as 3 minutes

CAN YOU load from the front without using blocking or turning equipment on deck

CAN YOU avoid detouring or unloading, moving ahead and reloading by traveling with front of deck lowered or raised to pass under or over obstructions

CAN YOU discharge overhanging loads by raising deck, blocking up load, lowering deck and pulling trailer out

CAN YOU raise trailer wheels to change tires or wheels of tractor while attached, to service tire or install chains

CAN YOU carry dippers, buildozer blades, etc., on an unobstructed gooseneck ?

PACKY SAYS: like sitting the down and letting the load slide off your back.

YOU CAN handle these operations and more with this new ROGERS Gooseneck Trailer. No winch is required saving up to \$900 in cost and up to 1000 pounds in overall weight. Write for illustrated literature.

ROGERS BROTHERS CORPORATION

Export Office: 50:Church St., N. Y. 7, N. Y. . Coble Address: "Broscites"

. . . for more details circle 292 on enclosed return postal card

# New HEAVY-DUTY INTERNATIONAL



- \*TRUE TRUCK TORQUE
- \*TRUE TRUCK ECONOMY

#### Greater Gasoline Economy

All-Truck International heavy-duty V-8 engines with True Truck Torque combine short stroke with low engine rpm. The result: less engine friction and drag. More working power is released from the engine, less gasoline is required to maintain it.

### More Usable Power at the Wheels

Efficient engine power doesn't pay off until it reaches the wheels. Heavyduty International V-8 Truck transmissions and axle ratios convert low engine rpm into extra-payload hauling power at the wheels where it counts. That's True Truck Torque! There's more "go" with more economy because engine, transmission and axle are balanced to match truck, traffic, terrain and job exactly!

#### Longer Engine Life

International heavy-duty V-8's combine rugged, all-truck design with big 401, 461 or 549 cubic inch displacements to develop full horsepower without life-shortening stress or strain. Exclusive "wet" replaceable valve guides, fully machined combustion chambers and other endurance features cut your maintenance costs.

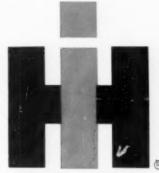
Whatever your hauling problem, there's a heavy-duty International Truck with True Truck Torque V-8 engine to handle it. Proof? See the statements of International heavy-duty V-8 truck owners who do the same truck job you do...at your International Dealer!



INTERNATIONAL model V-225 tractor with 549 cu. in. V-8 engine



INTERNATIONAL model VF-192A dump with 401 cu. in. V-8 engine



International Harvester Company, Chicago Motor Trucks • Crawler Tractors Construction Equipment • McCarmick® Farm Equipment and Farmall® Tractors

INTERNATIONAL TRUCKS cost least to own!

. . . for more details circle 271 on enclosed return postal cord

In road business 30 years...used all finishers

# "I do 700-800 ft. more per day with my Rex Concrete Finisher!"



MIKE VELOTTA of M. F. Velotta Construction Company, Cleveland, is talking from experience—30 years of it! He puts it this way, commenting on his Rex Concrete Finisher performance:

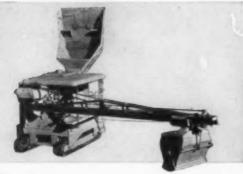
"On this Cleveland road-paving job, we are doing 700-800 feet more per day with our Rex Finisher. As far as we're concerned, there's no other like it for fast, foolproof operation—and we have worked with all finishers on the market."

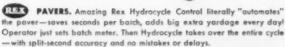
The rapid-pace, high-quality finishing of a Rex is the direct result of years-ahead design. None of the old-time, limited-performance features in these modern finishers. They're keyed to today's high production needs—in all these ways: bigger screeds for faster finishing • six forward and reverse speeds plus four independent screed speeds—24 total working combinations • engineered for maximum operator convenience • smoothest operation, no rocking of forms • maximum portability. Step up your paving pace with a Rex Finisher!

#### Counts on Road Forms, too!

Mike Velotta picks up more job profits with Rex Road Forms. He likes the fast setups and easy alignment he gets. "There's real support with Rex stake pocket design," he says.









BATCHING PLANTS. Famous Burmeister Portable Batching Plants in two- and three-stop setups. Highest production with fully automatic batching. Fast, accurate, foolproof. Easy transporting, fast assembly. Also central mix plants.



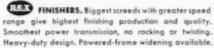
# is the complete "one-stop" road-builders' headquarters

-with across-the-board modern equipment!



BELTING AND BURLAP DRAG MACHINE.

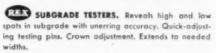
The Rex Mechanical Belting and Burlap Drag Machine, with an operator, does the work of four men—replacing two on the belting operation and two on the drag operation. The machine is faster than manual operation, with speeds up to 30 feet per minute in both directions.





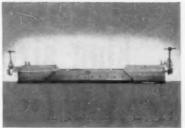
curing Machines. The greatest speed and efficiency ever put in an automatic curing machine. Only Rex Curing Machines can step up operating speed to five times normal speed and actually overtake pavers. Complete flexibility to adjust to any weather conditions.















Get informative, illustrated literature on all Rex road-paving products.

See the advantages of America's most modern line. Ask your

Rex distributor for the Rex literature library on road-paving equipment

—or the specific Rex product of interest. Or write

CHAIN Belt Co., 4652 W. Greenfield Ave., Milwaukee 1, Wis.



OTO-MIXERS . BINS AND BATCHERS . BUILDING MIXERS . PUMPCRETE . RAILPORTER

#### CHAIN BELT COMPANY

PUMPS . PAVERS . SPREADERS . FINISHERS . FLOATS . CURING MACHINES . FORMS

... for more details circle 254 on enclosed return postal card



not even king size boulders stopped this Manitowoc! Huge boulders...too big to pass through the dipper...didn't stop this Manitowoc  $2\frac{1}{2}$ -yd. Model 3500 shovel from loading out an average of 1200 to 1300 yds. of abrasive granite every  $7\frac{1}{2}$  hour shift. Goodfellow Brothers of Wenatchee, Washington used two of the Model 3500 rigs for handling rock on a Washington State Highway project. This was a rush job...moving over 160,000 yards of rock alone in four month's time.

This rock was hard to blast which resulted in the huge, hard-to-handle boulders. However, the Model 3500 shovels have the power, speed and capacity to keep haul units moving in a steady stream from the job area. Simple, balanced design throughout delivers more horsepower to the dipper . . . there's no wasted power. The entire machine has only 14 gears and pinions and only working gears turn . . . a power-saving feature found exclusively on Manitowoc shovels and cranes. A massive, one-piece carbody mounted on long, wide-spread crawlers provides greater stability. Many other features give you advantages to bid lower . . . make more money on any job.

Your Manitowoc distributor will show you why Manitowoc beats them all for more profitable, powerful performance . . . call him now!

Minitowog

#### MANITOWOC ENGINEERING CORP.

MANITOWOC, WISCONSIN

CRANES 20 TON - 100 TON SHOVELS

DRAGLINES

TRENCH HOES

ROADS AND STREETS, January, 1958

### For Improved Operation of Mobile Equipment



# Improved Vickers CM11 Multiple Unit Valves

Improved control, greater convenience and economy have been provided by this new design of Vickers Series CM11 Multiple Unit Valves. They are widely used on such applications as: material handling equipment, farm tractors, construction and mining machinery, bucket loaders, and many other types of mobile equipment where accurate control of hydraulic power is required.

#### Simultaneous Functions

Valves may be operated individually or simultaneously. Saves operator's time on the job. Full pump delivery is available at any one valve when operated singly.

#### **Precise Control**

Improved metering characteristics and Vickers exclusive porting arrangement make possible a smooth and selective control... greater precision in nudging, crowding, inching and positioning. Valve spools are spring centered to neutral position and hydraulically balanced to prevent kicking-out due to excessive back pressure or surges. A check valve in the inlet prevents pressure surges at the cylinder from acting destructively on the pump.

#### **Overload Protection**

Tamper-proof integral relief valve provides excellent overload protection and low override characteristics. Relief valve is preset at factory to any one of 6 cracking pressures from 500 to 1750 psi (250 psi increments).

**High Capacity** 

Maximum capacity is 12 gpm with three or less valve sections, or 9 gpm with over 3 valve sections. Maximum working pressure is 2000 psi.

Sectional Assembly

A high degree of control flexibility from minimum inventory is assured users requiring a variety of valve assemblies.

Seal Plate Subassembly

Steel spacer plate with rubber seals bonded in place allows rapid, leak-proof assembly of valve sections. Plate subassembly permits instant, positive joining of sections with no danger of overstressed through bolts and cramped valve spools.

Minimum Space and Weight

Simplified design and construction characterize CM11 valve assemblies. Valve end sections combine in one casting the inlet or outlet manifold together with any operating valve section...saving space and weight.



Rubber seals bonded in steel spacer plate assure fast, leakproof assembly.

INTEGRAL OUTLET MANIFOLD

(ON BOTTOM)

Alternate discharge for pipe connections or for gasket mounting to oil reservoir



**Easy Mounting** 

Mounting is a simple three-point installation. Cylinder connections are %-16 UNF-2B thread (SAE type)... inlet and discharge ports are %-14 UNF-2B thread (SAE type). Alternate discharge connections in bottom of end sections provides for gasket mounting to oil reservoir or to ½" threaded pipe.

Interchangeability

Interchangeable valve sections assemble for both original and conversion equipment with minimum stock requirements. Added operations are quickly accommodated simply by adding suitable valve sections.

For further information, write for Bulletin M5101A.

#### VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

Mobile Hydraulics Division

Mobile Hydraulics Division
ADMINISTRATIVE and ENGINEERING CENTER

Department 1432 • Detroit 32, Michigan

Application Engineering Offices: ATLANTA - CHICAGO CINCINNATI - CLEVELAND - DETROIT - GRAND RAPIOS HOUSTON - LOS ANGELES AREA (EI Segundo) - MINNE-APOLIS - NEW YORK AREA (Springheid, N.J.) - PITTSBURGH AREA (Mt. Lebanon) - PORTLAND, ORE. - ROCHESTER SAN FRANCISCO AREA (Berkeley) - SEATTLE - ST. LOUIS TULSA

IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto and Montreal

. . . for more details circle 303 on enclosed return postal card

#### **LETTERS**

(Continued from page 44)

slabs and should be reduced so that less steel is required. When jacks are used to prestress, there is no need to reduce friction under the slab since there is little extra cost in the additional force required to overcome friction. This appears to be the reason why Mr. Coppage has not suggested the use of a friction reducing material under the slab.

Apparently Mr. Coppage has designed the pavement for an 18,000 lb. wheel load (including impact) on a soil where k = 200 psi per in. By using an 8 in. pavement as proposed, the flexural stress would be about 350 psi due to the 18,000 lb. wheel load and the warping stress will be near 200 psi which equals the minimum prestress at 0 degree. This would leave 350 psi tension in the bottom of the slab when the temperature is 0 degree. When the minimum prestress at 0 degree is 200 psi, as proposed by Mr. Coppage, and the temperature rises to 13 degrees, then the prestress is increased to 400 psi. At a temperature of 19

degrees, prestress would be 500 psi.

With these prestresses, it is believed that slabs of 6 in. and 5 in. respectively will perform satisfactorily. Because the minimum temperature is not sustained for a long period, it would seem that little damage would be done to these thin slabs even if they were overstressed at the minimum temperature. Should the designer feel that this is not satisfactory, then he could increase the prestress at 0 degree to 400 or 500 psi and still use a 6 in. or 5 in. slab. These thinner slabs would result in some saving by lower concrete costs while the cost of prestressing would possibly be increased very little, if at all.

I believe, as I am sure Mr. Coppage does, that pavements of this nature should be constructed on an experimental basis first where prestressing, pavement thickness, and anchoring elements can be varied and tried under actual traffic conditions. Only then will we have the necessary data to properly design a prestressed pavement.

To the Editor:

We read with interest Mr. Hubert C. Person's article in the Editor's Note. In publishing this comment, the editors would like to point out that Mr. Persons' report on the World Prestressing Conference did not attempt to editorialize, but to do a straight reporting job on the various papers presented at the Conference.

October 1957 Roads and Streets, reporting on the World Conference on Prestressed Concrete in San Francisco during July, 1957.

A few facts have developed since your article was written which might be of interest to you as a follow-up on some of the state-

ments quoted.

On page 121 you report on the talk by Mr. David M. Goodall, Senior Bridge Engineer, Bureau of Public Roads, Portland, Oregon. This talk by Mr. Goodall gave a detailed description of the proposed long-span, high-level Nisqually Glacier Bridge. In one paragraph you report as follows:

Mr. Goodall declared that engineer's estimates indicated a substantial saving could be effected by the use of the prestressed concrete design. He said, however, that the

(Continued on page 54)





Lima Type 1601 Shovel equipped with a 32-ft., 6-in. boom. 22-ft. dipper handle and 4-cu. yd. bucket. Shown loading shot limestone at junction of new U. S. 40 and Rt. 202 north of Dayton, Ohio, Owned and operated by Smalley Construction Corp., Celina, Ohio,

# LIMA speed, mobility and ease of control pay off for Smalley Construction Corp.

Smalley Construction Corp., Celina, Ohio, is one of the state's leading road and excavating contractors. At the present time the company is working on the relocation of U. S. 40 about 10 miles north of Dayton. This is a \$4,800,000 project and entails moving 1,400,000 yards of material and laying 20 miles of 2-lane pavement.

Francis Smalley reports: "To do the big digging jobs on this operation, we purchased a Lima Type 1601 Shovel equipped with torque converter in May, 1957. Since then we have been working it on two 8-hour shifts per day, and we have been averaging 5,000 yards of material per shift, which we think is very good."

Tops in speed and mobility. "One of the best features of the shovel is the speed of operation. It has a supercharged diesel engine and, with the torque converter, you get an amazingly fast, smooth digging cycle. We also like the mobility of the shovel—both on the job and the way it knocks down for movement from job to job."

Air controls are good feature. "The air controls on the Lima make it easy to operate. This is an important feature, because it helps you keep your skilled operators, and they can do more work without fatigue."

Gets good service. "We've found that you get exceptional service when you buy Lima, both from the distributor and from the factory. This means a lot in our business."

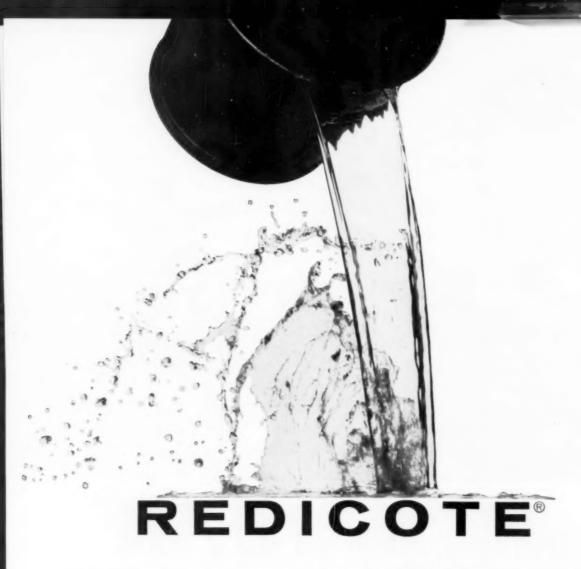
Get the full story and you'll specify Lima for shovels (½ to 6-cu. yds.), cranes (to 110 tons), and draglines (variable). See your local distributor or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

. . . for more details circle 310 on enclosed return postal card

LIMA Construction Equipment Division, Lima, Ohio
BALDWIN · LIMA · HAMILTON





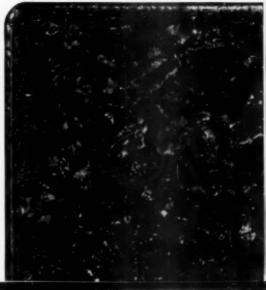
# Rejects water and binds asphalt to any aggregate

Without Redicote



New defense against stripping! In a simple, dramatic test, two pans of asphalt-coated damp aggregate for pavements were subjected to a steady spray of water. One asphalt contained Redicote, Armour's new additivethe other didn't. The asphalt containing Redicote did not strip. Here is convincing proof that Redicotes increase the stability and durability of asphalt pavements.





# Armour's asphalt additives prevent stripping— lock asphalt onto even water-soaked aggregates— give you extra months of paving time each year.

As little as 0.3% of an Armour Redicote asphalt additive in your asphalt formulation means the asphalt will stick and stay—even to wet and difficult-to-coat aggregates. You save money because you can use a much wider selection of locally available aggregates, and Redicotes work equally well on acidic or basic aggregates and gravel.

Redicotes reduce the need for pre-treating aggregates. They increase the efficiency of emulsified products and enable you to lay asphalt regardless of weather conditions. You can start earlier in the spring and work later in the fall. Whenever you pave, wherever you pave—Redicotes will prevent stripping.

All Redicotes are guaranteed uniform. One of three basic formulas will meet any asphalt requirment—hot or cold.





Look how Redicote 75 passed the Pennsylvania Wet Aggregate Coating Test! Only 0.4% Redicote 75 was added to MC-3 asphalt. No additive was added to the "control" asphalt. Then Pennsylvania aggregate was coated with the two mixtures under water. After mixing, the aggregate coated with asphalt containing Redicote still had a 95% coating. The "control" aggregate retained only 25% of its asphalt.

See the Redicotes under actual test conditions in Booth 11 and 12 at the ARBA Show, Washington, D. C., January 20-23, 1958.

Leader in Progressive Fatty Acid Chemistry



#### ARMOUR CHEMICAL DIVISION

© Armour and Company • 1355 West 31st St. • Chicago 9, III.

. . . for more details circle 234 on enclosed return postal card

ROADS AND STREETS, January, 1958

It is not necessary to modify the Redicotes or tailor-make a new asphalt formulation for every different paving situation. Speed and efficiency are substantially increased.

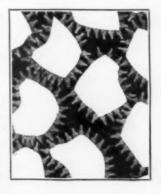
Redicote 75 is a 100% active, anti-stripping material. It is recommended for cold mix asphalt cutbacks where stability to extreme storage temperatures is not required. Both Redicote 75 and 2323 have proven to be outstanding wetting and bonding agents under the most adverse weather conditions.

Redicote 2793 is a 60% active anti-stripping additive, probably the most economical you can use for many aggregates. Its versatility, price and concentration required result in an asphalt additive that is right for most jobs.

Redicote 2323 was developed to meet the need for an anti-stripping additive where heat stability is important. It maintains its effectiveness after being subjected for 7 days to asphalt temperatures as high as 450°F. Ideal additive for cutback asphalts.

Samples of the Redicote asphalt additives are available for your evaluation and testing. We also would like to send you a copy of our *new* Redicote booklet which describes the Redicotes in detail.

Molecules of the Redicotes attach themselves with incredible force to stone surfaces, whether there is moisture present or not. The cationic surface active agents in Redicote squeeze away the water, and the "tail" of each molecule holds on to the binding asphalt with great tenacity. They actually change a water-accepting surface to an asphalt-accepting surface to an asphalt-accepting surface—and stop stripping before it begins.



	more about Redicate Asphalt Additives The new Redicate booklet.
_	ote 75; Redicate 2793; Redicate 232:
	rmour Redicates. I am interested in coating the following
NAME	
TITLE	
FIRM	
CITY	STATE
	r Limited to North American Continent
Offe	r Limited to North American Continent

# LETTERS To the Editor

(Continued from page 50)

project had been advertised for bids on the basis of structural steel deck girders and an alternate using prestressed concrete spans."

It is indeed fortunate for the taxpayer that the Bureau of Public Roads called for a structural steel price as well as a prestressed concrete price. In an article in Engineering News-Record Mr. Goodall was reported as stating that their estimates showed a saving of \$200,-000 in prestressed concrete. It is a fact that when the bids were taken around mid-August that the low bid was in steel by about \$78,000. We understand the contract has been awarded in steel.

On the second column of page 121 you report on the talk by Mr. M. E. Bender, chief bridge engineer of Joseph K. Knoerle & Associates, Inc., of Baltimore. Mr. Bender reports that by using prestressed concrete bridges on 224 sites the Illinois Toll Highway Commission would save approximately \$4,-

ooo,ooo. Unfortunately in this particular case they did not have alternate plans made and no firm steel bids were received.

According to reliable information we understand that the engineers estimated the prestressed concrete Pilot Bridge at \$125,000 and a similar structural steel product at \$150,000. On preliminary estimates this showed a saving of \$25,000 per bridge which for over 200 bridges represents a saving of four or five million dollars. However, the facts are that when they took firm bids on the prestressed concrete design of the Pilot Bridge, they actually awarded the contract at a price of nearly \$155,000. Thus the cost to them for the prestressed concrete bridge exceeded the estimated cost of the steel bridge. Therefore, it seems safe to assume that there was no four or five million dollar saving realized.

As a further interesting side-light on the Illinois Toll Highway construction, we have been told that very recently the Commission approached a structural steel fabricator with the request that they accept a contract for a particular small bridge. The interesting point is that this particular bridge had been designed in prestressed concrete and a contract had been awarded and for some reason, unknown to us, they have switched back to steel.

Needless to say, all of the above facts can be verified by you either from the Bureau of Public Roads or from the Illinois Toll Highway Commission.

We have no intention of attacking or criticizing competitive materials, but we do like to see the records clear and completely stated. We felt that the report from the meeting in San Francisco was not complete.

L. Abbett Post Executive Vice President American Institute of Steel Construction, Inc. 101 Park Avenue New York, New York

### Indiana Department Adopts Design by Automation

A new program of serial engineering, designed to speed the highway effort and make greater use of available technical personnel, has been initiated by the Indiana highway commission. Photronix, Inc., of Columbus, Ohio, has been hired for this work. The project will be 11-miles section of route 136.

Get exactly the tread design your job requires

At SOUTHERN TIRE!

AT YOUR SERVICE — the world's most complete range of tire sizes and tread designs in one shop — now at Southern Tire Company!

Whether you operate light or heavy equipment, Southern Tire can supply the tread design and size you need—and save you money at the same time. Superior equipment, including the greatest range of tire sizes and tread designs in the country, and the world's largest and finest three-sectional retreading mold, enables Southern Tire to retread any tire, regardless of growth, without buffing to the breaker strips. This, plus Southern Tire's long experience and use of finest tread rubber, assures you of guaranteed new tire service—and the tread design you need—at less than half new tire cost.

All special service tire sizes from 1100 x 24 to 33.5 x 33.

Call your favorite dealer and specify Southern Tire retreads





SOUTHERN TIRE COMPANY

1414 Broadway SHEFFIELD, ALA. Phone Collect EV. 3-2312





GMC Money-Makers available in models from 1/2 to 45 tons

Now...from the pioneer in self-shifting trucks-

# GMC Money-Makers with Allison TORQMATIC Transmission

HERE IT IS! Now-in trucks for most every need -GMC brings you a completely new, fully automatic transmission. It's made by Allison and patterned after the famed units that have proved their mettle in giant off-the-road vehicles for more than a decade.

It's actually a 3-piece "economy package"—eliminating any need for expensive supplementary equipment

First, you get four driving ranges with six forward speeds. There's a 14.8 to 1 ratio for starting. You get just the amount of torque you need for just the load you're carrying and the road you're traveling.

You get a built-in Hydraulic Retarder that supplies

effective "engine braking" at the touch of a toe. That makes for far greater safety—especially with big loads.

You get the sure engine and drive-line protection of a torque convertor—but with the fuel economy of a direct-drive lockup that engages in every gear. And two power take-off provisions deliver power through the convertor for smoother, safer operation of your auxiliary equipment.

What's more, you can collect on all these Allison TORQMATIC advantages in any GMC Money-Maker in the 19,500-46,000 GVW range. See your GMC dealer!

GMC TRUCK & COACH
A General Motors Division

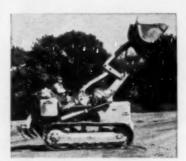
# **GMC-America's Ablest Trucks**

Here



comes...

#### the TRAXCAVATOR'S



new...



# SIDE DUMP BUCKET!

... for more details circle 247 on enclosed return postal card

# -Directly interchangeable with standard bucket...same pins, bolts and nuts! -Easy to operate! Dumps to the left as well as forward!

Now the famed Cat-built No. 955 and No. 933 Traxcavators are more versatile than ever! The new Side Dump Bucket attachment gives you

- Higher production, because cycle time can be cut
- Lower maintenance, greatly reduced ground scuffing, because turning when loading is no longer necessary
- Easier handling because the unit now needs less space for loading and truck spotting.

And you retain all the regular Traxcavator's popular features. Lockout-kickout, bucket positioner, 40-degree tilt-back, one-hand bucket control. No interference, either, with other Traxcavator\* attachments when you equip with the new CAT\* Side Dump Bucket. Get complete details from your Caterpillar Dealer now!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

# CATERPILLAR\* \*\*Caterpillar, Cat and Tranzavator are Registered Trademarks of Caterpillar Tractor Co.



Side Dump Buckets Available for the No. 955 and No. 933 Traxcavators!

No. 955 No. 933 **Bucket** capacity 1% cu. yd. 1 1/4 cu. yd. Overall width of bucket 96" 86%" 17' 51/2" Overall height, side dump 15' 61/14" Overall height, level 14' 6" 12' 111/16' 241/3" Left side dump reach 251/2"

# **Vibratory Rollers**

### Compact 8 Million Yards of Sand

Small vibrating units prove speedy and effective in compacting sand fill and granular subbase for heavy-duty airfield paving. Fifty-ton pneumatics also used to comply with specifications and as a check for weak spots. Notes on this and other aspects of Geo. M. Brewster's \$16.8 million contract at Griffiss Air Force Base.

By Harold J. McKeever Editor-in-Chief of Roads and Streets

VIBRATORY COMPACTION is making a good case for itself at Griffiss Air Force Base, Rome, New York. Vibrating steel rollers weighing 31/2 tons performed most of the consolidation of sandy fill and select subbase for the new runway facilities here. And these units are producing the required densities with fewer passes and lower cost than the large pneumatic rollers used alone.

This is one of the noteworthy aspects of a \$16,742,000 contract job held at Griffiss by Geo.

First of two articles.

Concrete paving methods to follow in a forthcoming issue.

M. Brewster & Son, Inc., of Bogota, New Jersey. The contract is under the supervision of the U.S. Army Corps of Engineers for the U.S. Air Force, New York Engineer District. The project is for a new 300 x 11,820 ft. concrete runway, parallel taxiway (with some overlay), aprons and other facilities. Chief quantities are 7,530,000 cu. yd. of unclassified excavation, 259,000 cu. yd. of spoil, 635,000 cu. yd. of select subbase, 326,000 cu. yd. of portland cement concrete pavement, and heavy drainage including a major creek diversion involving pipe up to 108 in.

The site consists almost entirely of sandy silt or silty sand, ranging from fine to coarse, with

• One of several paired 3½-ton viberating Vibro-Plus "Terrapac" rollers at work on the new runway foundation, Griffiss Air Force Base. Waukesha diesel engines on the units pictures. (Roads and Streets staff photos).





• Test rolling with a 50ton rubber-tired roller. This unit supplied by Supercompactors, Inc., is weighted with lead pigs, and a steel cover welded on to prevent theft of the metal.

traces of clay usually in thin laminations. Swampy areas explain the large spoil yardage. Practically no plastic material is involved in the compaction; only occasional material even borders on the plastic. Cuts and fills ranging to 30 ft.

The design for heaviest planes requires that all subgrade under pavement, overrun zones and shoulders be compacted to 100 percent density, as measured by the modified AASHO method of test, or that density obtained by 8 passes with a 50-ton rubber-tired compactor, whichever is highest. Test sections were built with this requirement in mind.

While testing and making a start in an area containing particularly fine silty blow sand, the contractor encountered difficulty in securing the prescribed density with a 50-ton pneumatic. A typical set of values from one day's lab report, for example, showed 94, 96 and 98 percent density respectively from one, two and three passes, with 100 percent not attained by succeeding passes. Vibrating steel-drum rollers introduced for experimental purposes at this stage, in the same material produced 97, 98, 101 and 103 percent respectively in two, four, six and eight passes. Moreover, the desired density was often obtained experimentally with lifts up to 15 in. compacted thickness (6 in. lifts, with 12 in. maximum specified). Some density readings up to 105 or even 107 percent were obtained where the vibrating roller was used in conjunction with both a 50-ton compactor and sheepsfoot roller.

As a result of this experience, the contractor was given permission to use these vibrating rollers as the chief compacting tool for the job, while at the same time the 50-ton compactor was used to comply with the original specifications and as a means of detecting weak spots in the subgrade.

To handle this volume of compaction, 10 and later 12 Vibro-Plus "Terrapac" Model CH 30 rollers were employed. Waukesha diesel engines have powered some units. Also German-built Deutz diesels. The contractor has experimented with various power application, in conjunction with the manufacturers. Along with the vibrators the contractor used Porter "Supercompactor" and Bros 50-ton compactor. Sheepsfoot rollers were kept on the field, and used occasionally on clayey material or to break up shale. The Vibro-Plus rollers, mostly powered by Waukesha diesel engines, were driven by Caterpillar D4 crawler tractors or by Euclid rubber-tired prime-movers. A D6 with two vibrator units in tandem was also part of the routine.

In a typical rolling operation, a Cat 12 grader laid out the material and turned it over to insure good uniformity and moisture dispersal, then several vibrating rollers combined to cover all areas with a total of two to four passes followed by at least one pass with a 50-ton roller towed by a heavy crawler.

A word about this material which has thus lent itself so well to vibratory methods. The test section previously referred to, and considerable areas of the field, made use of extremely fine blow sand of glacial origin. In a typical analysis this sand assayed 97.5 percent passing 3/8, 93 percent pass-

This combination of rolling prevailed throughout the 1957 working season, during which unclassified material was moved at rates varying from 25,000 up to 60,000 cu. yd. per double-shift day, with about 6,000,000 cu. yd. placed between April and September 1, 1957.



<sup>•</sup> Material delivery, spreading, blade turn-over and rolling in full swing at Griffiss Air Force Base.

ing 40, and 21.6 percent passing 200 mesh. The sand in some cases ran to 98 percent passing 40, or even to 70 percent passing 200 mesh. Elsewhere the sand was coarser, and sometimes gravelly. It is noteworthy that all of this non-plastic material has readily densified to the 100 percent modified

with routine vibratory rolling.

As might be expected, moisture control has been no problem on this job. Optimum moisture has ranged from 8 to 14 percent, with flat moisturedensity curves giving the contractor considerable latitude in sprinkling. The water table was only a few feet down, and hence the material usually contains ample moisture for processing when first spread. The job none-the-less has required larger water gallonages from Brewster's 5,000-gal. big tired sprinklers.

• The subbase also is being densified chiefly with the 31/2-ton vibrating rollers. This layer is from 27 to 30 in. thick as part of a uniform total 44 in. of pavement and subbase, and the blanket extends under all shoulder and overrun areas. Placement is specified in 6 in. compacted lifts. Specifications require that material used be free draining and frost resistant. Gradation limits, by weight, are as follows:

3 in. size, 100% passing; 3/4 in., 55-90%; No. 4. 30-55%; No. 20, 10-28%; No. 200, 0-7%; .02mm.,

The design criteria resulted in selection of a subgrade "K" value of 400 for this field. Determination are made with a 30-in. plate using a heavily weighted supercompactor for leverage.

The material used comes from a large and fairly uniform, but sometimes coarse glacial deposit immediately along the runway. Material is loaded with a Bucyrus-Erie 71-B and a 54-B shovel and delivered with large dump trucks. The spread is made with dozer, dozer-propelled spreader and blade, with areas of spread varying to give good turn-around conditions and provide enough room for arriving equipment. Placement has reached 7,000 cu. yd. per day.

Rolling is done with the Terrapacs pulled



• One of several 5,000-gal, tankers for sprinkling haul roads and adding compaction moisture. (Euclid bottom-dump with Cummins engine).

singly or in tandem, covering all areas with from two to four passes. As with the subgrade, a 50-ton compactor follows as a checking device.

The 400 "K" value has been reached easily, and frequent values of 500 are obtained. "Phenominal" values up to 700 or more have been reported from experimental rolling using both 50-ton pneumatic and sheepsfoot roller along with the vibrators. A number of other commercial types of rollers have also been tried on the project at various times. The 31/2-ton vibrators, at summer's end, were still producing good compaction with economy. The 50-ton compactor, incidentally, is reported to have shown an occasional tendency to degrade the gravel. When accompanied with vibration and undesirable concentration of fines has been produced in the bottom of the subbase under certain conditions.

The prevalence of stones larger than 3 in. has posed a special problem in subbase construction. In lieu of placing a screen or crusher in the pit, the contractor has made successful use of a Bros Preparator on the grade. This unit towed by





### Breaking Oversize in the Windrow

 (Left and Below): Windrowing subbase in the apron area, and passageway of the Bros Preparator which successfully broke up sufficient over-size stones to bring the pitrun material within gradation limits.

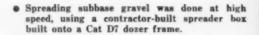




### Gravel Base Placement At Griffiss Airfield



 Gravel for subbase layer was delivered by a Le-Tourneau-Westinghouse scraper in this instance,





Big stones were sometimes picked out of windrowed subbase gravel by this rake before passage of the Bros Preparator. Only material from certain parts of the pit required such measures.





The big Pit where subbase gravel was loaded to Mack trucks using two Bucyrus-Erie shovels having 6½ cu. yd. combined dipper capacity.

a Cat D7 makes one or two passes through windrowed material, sometimes in conjunction to a pass with a heavy spring-tooth rake to bring large stones to surface.

The Brewster contract has required a large fleet of equipment. The 88 acres of clearing was done with dozers and dragline. Drainage has required reinforced concrete pipe up to 96 in. and 102 in. and 108 in., the latter with a concrete cradle for relocation of a creek. Ditching has sometimes penetrated underlying shale, requiring the use of a Gardner-Denver Air Trac, Worthington 600 cfm compressor and others.

The earthmoving has been performed in double-shifts using 30 heavy tractors, 6 light tractors, 20 single-engine scrapers, 9 motor

Deutz air-cooled diesel engine, German built; one of several types of power tried by Brewster on the 3½-ton vibrating rollers.

graders, 3 belt loaders, 34 bottomdumps, 11 rear-dumps, 30 large light plants and an array of other equipment. Including paving and other work throughout the project, Brewster reportedly has more than \$4,500,000 invested in equipment at Griffiss Air Force Base.

E. D. Branham is resident manager for Geo. B. Brewster & Son, Inc., E. N. The U. S. Army Corps of Engineers is represented by N. N. Clark, project engineer, under Lt. Col. Arthur H. Baiden, Jr., area engineer in the Corps' New York district.

A second article will deal with the concrete paving batch plant, radio, special water-supply system, and other phases.





- Two of several types and sizes of floodlight units, of which there was a "forest" on sections of the Griffiss project.
- Drinking water containers spotted over the job were refilled—and thirsty workers served directly—via this special truck with sanitary tank.



#### INTERSTATE VS. ABC JOBS - KEEP THEM IN BALANCE

When the President in 1956 signed the act creating the Interstate highway program, few engineers or contractors fully foresaw the extent of the technical changes that this law would help set in motion.

For contractors, the Interstate jobs will be handed out in bigger contract chunks in many states. There will be more of the complicated urban projects, testing management ability to coordinate and execute the work rapidly. The new big-capacity equipment models can spread their wings. Contractors' paving crewmen will feel the tightening controls of tougher specifications for everything from aggregates to surface tolerances.

For the highway administrators, whatever problems of right-of-way acquisition, public relations, and area planning already taken shape, these were soon to become more acute. The pre-construction task today is so formidable that some highway departments are still bogged down in their urban programs.

For the highway engineers, hardly a specialization has not felt the impact. Design geometrics have had to be re-appraised, and totally new concepts developed with respect to such subjects as maintenance equip-

ment and procedures for high-speed facilities, landscaping, signing and marking of interchange approaches, and the degree of custodial care given to motorists.

The Interstate phase was in the forefront in most of the committee sessions at AASHO's Chicago convention, as reported in this issue. This reveals that highway technology is dynamic and fast evolving. But here and there a voice was heard on the so-called ABC systems—the primary, secondary and urban road networks that along with county and local roads will support and nurture the 42,000-mile Interstate system.

In the past year many states, in order to make a good initial showing on the Interstate program, have allowed the other projects to lag. It is hoped that a balance will be restored here. Many a locality today will be best served by pushing modernization of the ordinary roads. And these projects which need little land purchase and advance engineering can be initiated quickly. Here is really something to think about. Not the least important is that such jobs can be used in 1958 to help keep contractors and equipment makers at high employment while the big fancy jobs are being planned.

The whole nation will sooner feel the full economic impact of the road program—and get more direct benefits the sooner—if the over-all program is kept in balance.

#### Briefly Noted . . .

An urgent call in all directions has been sounded by the U.S. Armed Forces for help in developing machines which will do the seemingly impossible.

One of them is a tunneling machine capable of boring 6,000 feet per hour through soil or 2,000 feet per hour through rock.

Another is a high-speed track for earthmoving equipment with a life expectancy of 5,000 miles of operation at high speed.

A third is a rapid means of getting men and equipment across gaps, whether wet or dry.

Aren't these things the highway contractor would also like?

Seriously, the aims of the military men here are being watched with much interest by contracting people as well as manufacturers. The industry still remembers that it was the bulldozer which symbolized the construction man's part in helping fight World War II all over the world.

#### Seek \$350 Million Road Bonds

Credit financing of highways has been considered recently in at least ten states to underpin locally the accelerated highway construction spurred by the big federal aid fund allotments.

This financing is sought through current legislative bills for the following sums: Delaware, \$19.3 million for highway improvement; Maine, more than \$90 million in two different sums for federal aid matching; Maryland, \$20 million for Interstate highway construction around Baltimore; New Hampshire, \$5 million for highway work; New

York, \$60 million for state highways and parkways; Oregon, \$8 million for state roads and another \$12.6 million for this use; Tennessee, \$30 million for federal aid matching; Texas, \$5 million for right-of-way acquisition in Dallas County; Vermont, \$25 million for federal aid matching; Washington \$75 million for the new freeway between Tacoma, Seattle and Everett and an additional \$3 million for the Echo Lake route.

In addition, a constitutional amendment is sought in California which would authorize the legislature to provide for the issuance of bonds by state, counties or cities.

#### Automotive Safety Foundation Opens Western Office

A western headquarters has been opened by the Automotive Safety Foundation, with address in the Whitson Building, 333 Hamilton Avenue, Palo Alto, California. Foundation headquarters will continue at 200 Ring Building, Washington 6, D. C.

#### Thruway Revenue Up 18%

The January to October revenue for the New York State Thruway was 17.9% higher than for the comparable 1956 period. Gross revenues for the period total \$26,448,000.

# Program "Moving Along"

-But Some States Still Dragging Their Feet

High-level problems in the national highway program reviewed, along with technical committee sessions, as AASHO officials take new stock of the job ahead.

Not all state highway departments are properly programming and scheduling their federal-aid projects—although, in general, the road program is moving ahead

about as planned.

This was the opening remark in an informal talk by Federal Highway Administrator B. D. Tallamy, speaking at the opening session of the American Association of State Highway Officials annual convention at Chicago, November 18-22. The top-boss of the road program told a packed audience first of the growing volume of projects set in motion in the Interstate and the "ABC" federal-aid program. Over 2,300 miles of Interstate projects are now in the "under construc-tion" category, he noted (see Roads and Streets' Newsletters for September and October). And 32,000 miles of other federal-aid projects were awarded and nearly the same mileage of such jobs were completed during the last fiscal year.

The Highway Trust Fund, recently in the red, has also been put in the clear, said administrator Tallamy, who went on to review specific administrative and technical

problems.

First off, he noted that some state highway departments have been slow to program and schedule jobs, or have done so in a manner that has caused confusion in Washington. As an example, state engineers may send in a list of top priority projects, then other projects are later put through also tagged as first priority. Or, a state may pass along construction plans developed by their consultants, without having checked them properly.

"It is the state's responsibility to develop accurate plans," said Tal lamy. Sending them to the Bureau with the attitude, "They're OK with us if they are with you," isn't enough. The state must exert positive leadership in developing the kind of highways they want, the administrator said.

On the subject of utilizing electronics to solve engineer scarcity, Tallamy reported that the Bureau of Public Roads now has a library of 37 electronic computer programs, selected to cover a wide range of engineering problems. Here again a number of states are dragging their feet, and have not as yet obtained computers or undertaken the training of personnel to the new electronic methods. "Electronic computers can save 90 percent of the effort in some technical operations such as continuous span bridge design," said Tallamy. With the new methods, the sizes of structural members, clear down to sizes of cover plates, can be given in a few minutes. Even right-of-way data have been reduced by electronic procedures in some states.

Performance versus results-type specifications was another subject touched on by Tallamy at Chicago. The Bureau's development section is exerting a fresh push to speed the adoption of contractor job specifications which will help cut costs yet assure quality construction. (See notes on Washington state's new compaction "specs" in this issue). The inconsistencies of many state highway specifications today were singled out by the Administrator, as for example a difference of 100 percent between various states in mixing time for paving concrete. This and other factors have the potential of stepping paver output to twice the present number of batches per hour in some instances, he noted; and of cutting direct job costs of concrete road work by as much as

The accomplishment of state highway departments in cities was next on Tallamy's list. "We're not getting the credit we deserve as highway engineers for the progress being made in urban highways," he said. The state engineers have often had to move in without adequate over-all plans. Reminding that the 1956 highway act requires the Interstate system to be designed for 1975 traffic volumes, he said, "How

(Continued on page 70)

 At AASHO meeting president-elect C. R. McMillan of South Carolina (center), new vice-president R. R. Bartelsmeyer, Illinois (left), and retiring president W. A. Bugge, Washington (right).



### How we use self-loading scrapers on production dirtmoving



Wm. A. McNeel & Sons Co. Sutherland and Oshkosh, Nebraska



It's unconventional, I know, but we don't own a pusher. For all practical purposes, our 6 D Tournapulls represent 100% of our fleet. Very seldom, if ever, do we push-load these 'Pulls\*. Even long hauls haven't called for a pusher. We've found they'll self-load all types of dirt effectively and profitably.

#### Converted to rubber in '52

I've been in the dirtmoving business about 30 years. Started out with a team of horses and a slip scraper, then moved into crawlers and scrapers. I kept my eve on the D Tournapulls that LeTourneau started making . . . figured that would be the hot stuff. When they came out with the big tires (18.00-25), I decided "This is it!" So we bought our first D Tournapull in 1952, the second in 1954, then 4 more 9-yd, machines early in 1957.

There's no set rule as to how we work our machines. We'll use all 6 in one place, or split them 3 and 3 to different jobs, or send 1 off alone to do a special job...whatever works out the best for us.

The 6 LeTourneau-Westinghouse D Tournapull  $^{(\!R\!)}$  scrapers shown in this article moved 157,000 yds. of sandy loam for Wm. McNeel & Sons Co., Sutherland and Oshkosh, Neb., on widening and relocation of 181/2 miles of U.S. 30, between Paxton and Ogallala, Neb. On subcontract for Missouri Valley Constr. Co., Grand Island, Neb., McNeel's dirtmovers self-loaded entire yardage, hauled right down the highway thru flagman-controlled traffic. Most dirt was moved from north side of road to build-up offpavement area farther down on the south side. 24' highway was widened for new 28' surface and 5' shoulders. Prime contractor handled the blading and compaction.

"D's" are shown moving dirt on 8000' cycles. Round-trip time averaged 4.5 to 5.5 minutes. Owner Bill McNeel estimates payloads of 6 to 7 cu. yds. Units returned to the cut at nearly 30 mph, sandwiched-in between eastwest tourist and commercial traffic averaging 3000 vehicles per day.

#### Specialty: "over-pavement" roadwork

Most of our work is road and street construction . . . mainly subcontract. We do a little land-leveling on farms, but we're primarily roadbuilding dirtmovers. Quite a lot of our work is over the pavement . . . much of it, what we call "shouldering-up".

For instance, on our Hwy. 30 widening job (181/2 miles, Paxton to Ogallala, Neb.) practically all the dirt was on the north side of the road. We had to haul the dirt across and down the highway in heavy traffic, to build-up shoulders on the south side. When regular cut-and-fill work was done, 2 'Pulls stayed behind to put the finishing touches on shoulders, after surface was blacktopped.

#### Smaller scrapers more flexible

We've concentrated on the D-size machine rather than, let's say, the 18-yd. size, because you can get around with D's better over the highways and in the streets. They're not too heavy, nor too big and wide. If you get the bigger size, you've got to get permits for going down the highway, or working across roads. Limits your method of operation. Of course, on the real big jobs where you've got a lot of yards to move, that's different. But for our kind of highway grade work, city paving, and so forth, I think it'll be a good many years before we'll be wanting anything bigger than our D'Pulls. Copyright 1957 by LETOURNEAU-WESTINGHOUSE CO.

McNeel Co. operators take a thin cut at higher than-average speed... top out a 6 or 7 payard load by "pumping" the electric-motor-controlled bowl up and down.



#### Self-load up to 15 mph

We feel that speed and a thin cut is the key to good loading. We don't use pushers because after a D Tournapull operator gets good at self-loading, a push-tractor can't catch him in the average loading areas. On city paving a pusher's no good. When you've got a whole block to load in, and nice level ground, your 'Pulls can come thru at about 15 mph. By the time they get near the end of the block they're almost loaded. Pump her once or twice and they're heaped and gone . . . a pusher couldn't catch-up.

Our operators have the self-load technique down pretty good. We've never done any load-weighing, but I'd say we load 6 to 7 pay-yards in the new machines without difficulty. On that 157,000-yd. Hwy. 30 job I mentioned, we set up a goal of 3000 yds. per day on the worst of it. That was 500 yds. per day, per machine, on the longest haul ... over 4000'. I figured it up later, and we hit that figure.

We tell our operators to get in... get a load... and get out. We like to see a nice rounded load — not necessarily one that's running over the sides. I've seen operators stay in the cut an extra minute to get about an extra yard. It's not worth it... it's hard on the operator and even harder on the machine.

We run all of our D's with offset digging blades. Think that's what makes such a big difference in their ability to self-load. As soon as the blade wears down, we reverse it, to be sure we have blade far enough out in front. We've run into a little rock, but it doesn't give us much trouble. We've found that our 4 new D's, with the wide-base (23.5-25) tires, self-load even better than the older machines. They get a load faster, and they get a better heap.

#### Get loads in mud or sand

Haven't found any real scraper work that D Tournapulls wouldn't do. It's surprising how they'll work in mud. They have just a little trouble self-loading when it's extra slippery. But wide-base tires have really made a difference. And the special traction (power-transfer) differential helps a lot . . . probably more than we realize because it's hidden, and

Continued on next page . . .

Flagman stops traffic momentarily while McNeel's self-loading D Tournapull U-turns into roadside cut area. There's no waiting for pusher...in fact, no waste-time anywhere. "D's" roll continuously, independently.



### How we handle production dirtmoving

(continued)

kind of hard to see it work. If it's too muddy for D's, no other scraper could handle it either. A crawler and scraper might go in just a little wetter places, but 98% aren't that wet. Another thing, the D with these big tires will handle sand every bit as good as a crawler-scraper.

We tried fluid in the tires on our first machine, and couldn't tell much difference. It didn't ride as good, and we think hydroflated tires dig down a little more with that extra weight. In our sandy soil, we don't want that. When you start digging in with the tires, that's the time to lift the blade and get the heck out of there to the fill.

#### Loads almost anywhere . . . cuts true

You'd be surprised at the places you can put a D Tournapull to work. On that Hwy. 30 job there was an unusual ditch-bank...it came up to a peak. It was pretty high, and one end fell off straight-down about 30'. We got a dozer to knock the peak off, and the boys cut the rest out with 'Pulls. On another rough job—for a drainage district—we had to go down in a hole about as big as a kitchen. Had to get in and turn around in a hole about 12' deep. It just shows you the kind of places the D can get in and out of.

Another good feature — these D's can self-load, and grade right along a gnat's heel. I mean they can hold

a steady cut next to banks and along paving forms. We've done some bank-sloping too... they do fine on that. And our 'Pulls pretty well maintain their own fills.

#### No haul too short

The longest we usually haul dirt is 4000′ to 4500′, one way. About our longest haul involved moving 1000 cu. yds. 3½ miles. I'd say an economical one-way haul for D's would be a mile or two. As for short haul, they just don't get too short for D Tournapull. Oh, a dozer might beat it, if it was just pushing a lot of dirt just a little ways. But for scraper work, there's no touching the D... they're faster than anything.

#### Moving rigs not a problem

We save time and money because we can always drive the D's from job to job, right down the highway. For that Hwy. 30 project, one Tournapull came about 130 miles from Alliance... one 43 miles from Oshkosh... and the other 4 from Sutherland. These 4 came the 30 miles in about an hour. Our operators really move these rigs. And traffic doesn't seem to bother them any.

#### Operators catch-on quick

New operators usually don't have any trouble learning how to run the D. One boy we got this year came from farming and cowboying. He just got right up and ran it. When we need a new Tournapull operator we just look for a good sensible young fellow. We don't want any fast jockeys. And it doesn't make much difference if a man has run crawlers or trucks before. We can teach him quick.

#### "Electrics" are simple

There's one thing I'd like to have other people know: These Tournapull electric controls are not complicated. They may look it, but they're not. It just takes a bit of reasoning. Then it's very simple. I like their speedy response, and easy maintenance. Another thing, electrics are either 100% perfect or they're not working at all. With cable, and especially with hydraulics, control efficiency falls way off - maybe 50% before you even know it. Our men have no difficulty learning how to maintain the electric system. We've had hydraulic control equipment; but these "electrics" are a lot less troublesome, and are "down" less.

#### Self-load 6 D'Pulls... machine availability 98% to 99%

#### A.M. check-out, every day

The mechanical efficiency of our D's is very high. We don't have much downtime . . . maybe 1 or 2% . . . something like that. Our men go over the equipment each morning to make sure it's in good shape to go. To a certain extent, each man is responsible for his own machine. I ask them to check oil and water before they start-up in the morning, and they're faithful about that.

#### Service training cuts downtime

My own boys, Vern and Russ, see that machines are taken care of. They've both been to LeTourneau-



Fingertip electric control of apron, blade, and forward-ejection tailgate give McNeel Co.

operators positive control, so they can maintain their own fills, almost unassisted.



Westinghouse training schools. These sessions really help. I know of some owners that don't like D's. But they didn't send even one man out to learn about Tournapulls. Then they get disgusted over some simple little thing that would take only a few minutes to fix, if they only knew how.

#### No major break-downs

Engines in the D are tops. They give us lots of power and we have very little repair work. This spring

we overhauled the one in the oldest Tournapull . . . over 5 years old. It's moved a lot of dirt in its day, and you might say it's never been pushloaded. The only push it's ever got is, once in a while, an idle grader push-loads a half dozen loads or so. In heavy self-loading, we use about 4 gallons of fuel an hour.

In spite of the fact that we're always self-loading, we've never had any unusual clutch trouble in the 'Pulls. We generally put a new clutch in about once a year . . . can't complain about that.

We've had awful good luck with transmissions. Had a little trouble with one new one - shortly after we bought it. But the factory took care of that, and everything was fine. Differentials give us no difficulty either. We finally replaced the spider gears

Continued on next page . . .







Even where traffic is heavy, McNeel's "D's" delay traffic little, as they return to the cut in 5th gear, to 29.5 mph. Continuous self-loading, and high-speed operation has not increased maintenance and repair costs.

### How we handle production dirtmoving

(continued)

in the 2nd oldest (1954) machine. The 1st one (1952) is still going strong.

Electric motors give us no problems. Self-loading, with all the pumping action we use, gives the hoist-motor quite a beating. We have to replace a shaft and bearings and hub...oh, every two or three months or so... not bad!

Never have any brake headaches. Those disc brakes are fine...you can stop right on a dime. We've only replaced linings on one Tournapull... the oldest one. And that was this spring. We can't complain about that even one little bit.

#### Tire expense is low

We feel we've had good tire life considering the fact that we're always self-loading our D's. Haven't done any recapping, but we switch our tires between prime-mover and scraper. We've bought 2 new tires for the 5year-old machine to date. Put about 1000 hours per year on a machine. This oldest D has over 5000 hours on it, and we put the new tires on about 2 years ago. The soils through this country are sandy, so it's pretty rough on crawler tracks. We feel sure it would have cost us far more over the past years, for crawler trackparts than it has for tires.



#### Works 6 D'Pulls without a pusher... makes good money

#### Wm. A. McNeel

It's pretty hard to sum-up in a few words, what I like best about D Tournapulls...they're just so good. D's have everything skinned when it comes to moving dirt. They get around quick...go anyplace...and they turn-around twice while a crawler turns once. They're the most economical machines to run and use on our kind of work. D 'Pulls make good money for us and we're very pleased with them.

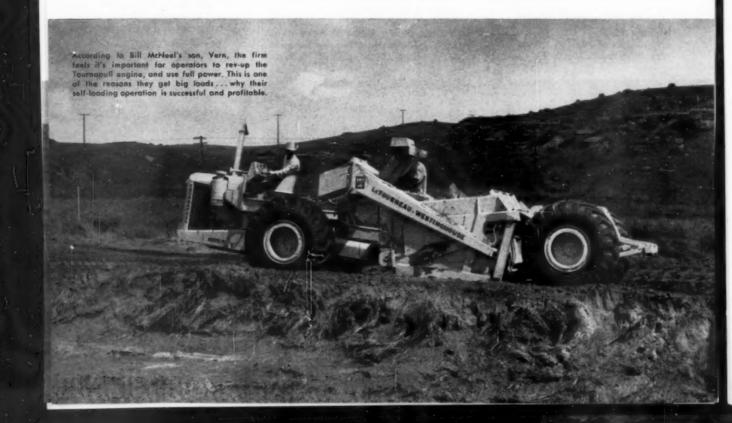
And if anyone wants to call me up to verify these facts, and our feelings about D Tournapulls, I'll be happy to talk to them.

#### 2 Vernon McNeel

"D is a swell machine, the only one, as far as I'm concerned. If any outfit has trouble loading, it's because they 'baby' them . . . they don't rev the motor up. D's have got to be wound-up to do a job. They're built to work at full power. So we teach our operators to keep up the rpm's. I like the ease of getting at various parts for preventive maintenance and repairs. And I like the electric system . . . it's wonderful power. You've either got 100% efficient control-power or no power at all . . . none of this half-way stuff. And when you move on the road, there's no worry about getting permits, or trucks and drivers and trailers to haul them for you."

#### Russell McNeel

"I really like D'Pulls a lot . . . especially for highway work. It takes a



sonnel gathered near Ogallala, Neb., for this group picture. (Top row, left to right) Lonny Ross, operator; Vernon McNeel; Everett Kendall, operator; (bottom row, left to right) Floyd Morris, Engineer for State of

ley Constr. Co. and Wm. A. McNeel & Sons Co.; Andy Laubner, operator; Bill Holson, operator; Billie Murray, Jr., flagman; Leonard Hofaker, operator; Russell Mc-Neel; Leo Schulte, operator; Wm. A. McNeel.



little while to really get used to running them, but after a fellow knows them and understands them, there's just a lot of things you can do that you can't with the others. The mobile service schools helped us, and we were to a factory school once . . . picked-up a lot of short-cuts on preventive maintenance and repair."

#### Operator Lonny Ross

"I've been operating D's since last year . . . before that, a crawler. I really like running Tournapulls, especially the electric controls. They're way faster than hydraulics . . . better all the way around. D is easier self-loading than any others, and it maneuvers so fast and easy. That's important when you haul in traffic."

#### 6 Operator Everett Kendall

"I've been working a D Tournapull for 3 months. It was easy to learn to operate. I came out for 3 hours on Saturday... then I started on Monday and ran 4 hours before it rained. I operated all day Tuesday, and on Wednesday they put me on production work. I have no trouble doing the preventive maintenance and trouble-shooting. D's are handy and fast... really maneuverable. I've run crawlers, so I know you can get in and out with 'Pulls, where you can't with a tractor and scraper."

#### 6 Operator Bill Holson

"I'm a newcomer at this (operated 2 days), but I think the D is a

mighty nice rig. I loaded full the first time I was ever on one. Naturally, I like the air brakes... I find you can really depend on them. D is easy to run, but I had just a bit of uncertainty at first, in changing over from cable controls to electric controls."

#### More facts

Call or write us for additional information on LeTourneau-Westinghouse 138 hp D Tournapull. We'll be happy to supply more job-application data, and to answer any questions you may have. We'll demonstrate this speedy 9-yd. (7.3-yd. struck) dirtmover, and show you the many features that can cut your costs on small and medium-size earthmoving contracts.

DP-1616-DCJ-6



#### LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

. . . for more details circle 308 on enclosed return postal card

#### How we handle production dirtmoving

(continued)

in the 2nd oldest (1954) machine. The 1st one (1952) is still going strong.

Electric motors give us no problems. Self-loading, with all the pumping action we use, gives the hoist-motor quite a beating. We have to replace a shaft and bearings and hub...oh, every two or three months or so... not bad!

Never have any brake headaches. Those disc brakes are fine...you can stop right on a dime. We've only replaced linings on one Tournapull... the oldest one. And that was this spring. We can't complain about that even one little bit.

#### Tire expense is low

We feel we've had good tire life considering the fact that we're always self-loading our D's. Haven't done any recapping, but we switch our tires between prime-mover and scraper. We've bought 2 new tires for the 5year-old machine to date. Put about 1000 hours per year on a machine. This oldest D has over 5000 hours on it, and we put the new tires on about 2 years ago. The soils through this country are sandy, so it's pretty rough on crawler tracks. We feel sure it would have cost us far more over the past years, for crawler trackparts than it has for tires.



#### Works 6 D'Pulls without a pusher... makes good money

#### Wm. A. McNeel

It's pretty hard to sum-up in a few words, what I like best about D Tournapulls... they're just so good. D's have everything skinned when it comes to moving dirt. They get around quick... go anyplace... and they turn-around twice while a crawler turns once. They're the most economical machines to run and use on our kind of work. D 'Pulls make good money for us and we're very pleased with them.

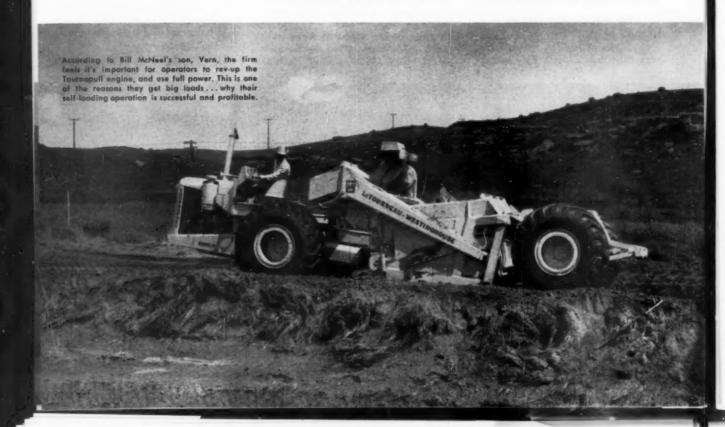
And if anyone wants to call me up to verify these facts, and our feelings about D Tournapulls, I'll be happy to talk to them.

#### 2 Vernon McNeel

"D is a swell machine, the only one, as far as I'm concerned. If any outfit has trouble loading, it's because they 'baby' them ... they don't rev the motor up. D's have got to be wound-up to do a job. They're built to work at full power. So we teach our operators to keep up the rpm's. I like the ease of getting at various parts for preventive maintenance and repairs. And I like the electric system . . . it's wonderful power. You've either got 100% efficient control-power or no power at all ... none of this half-way stuff. And when you move on the road, there's no worry about getting permits, or trucks and drivers and trailers to haul them for you."

#### Russell McNeel

"I really like D'Pulls a lot . . . especially for highway work. It takes a



sonnel gathered near Ogallala, Neb., for this group picture. (Top row, left to right) Lonny Ross, operator; Vernon McNeel; Everett Kendall, operator; (bottom row, left to right) Floyd Morris, Engineer for State of

ley Constr. Co. and Wm. A. McNeel & Sons Co.; Andy Laubner, operator; Bill Holson, operator; Billie Murray, Jr., flagman; Leonard Hofaker, operator; Russell Mc-Neel; Leo Schulte, operator; Wm. A. McNeel.



little while to really get used to running them, but after a fellow knows them and understands them, there's just a lot of things you can do that you can't with the others. The mobile service schools helped us, and we were to a factory school once... picked-up a lot of short-cuts on preventive maintenance and repair."

#### Operator Lonny Ross

"I've been operating D's since last year . . . before that, a crawler. I really like running Tournapulls, especially the electric controls. They're way faster than hydraulics . . . better all the way around. D is easier self-loading than any others, and it maneuvers so fast and easy. That's important when you haul in traffic."

#### 6 Operator Everett Kendall

"I've been working a D Tournapull for 3 months. It was easy to learn to operate. I came out for 3 hours on Saturday... then I started on Monday and ran 4 hours before it rained. I operated all day Tuesday, and on Wednesday they put me on production work. I have no trouble doing the preventive maintenance and trouble-shooting. D's are handy and fast...really maneuverable. I've run crawlers, so I know you can get in and out with 'Pulls, where you can't with a tractor and scraper."

#### 6 Operator Bill Holson

"I'm a newcomer at this (operated 2 days), but I think the D is a

mighty nice rig. I loaded full the first time I was ever on one. Naturally, I like the air brakes... I find you can really depend on them. D is easy to run, but I had just a bit of uncertainty at first, in changing over from cable controls to electric controls."

#### More facts

Call or write us for additional information on LeTourneau-Westinghouse 138 hp D Tournapull. We'll be happy to supply more job-application data, and to answer any questions you may have. We'll demonstrate this speedy 9-yd. (7.3-yd. struck) dirtmover, and show you the many features that can cut your costs on small and medium-size earthmoving contracts.

DP-1616-DCJ-6



#### LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

. for more details circle 308 on enclosed return postal card

#### Commissioner Curtiss Announces Retirement

The general opening session of the AASHO meeting in Chicago heard C. D. Curtiss, commissioner of public roads, review the problems and progress of the federal highway program. At the close it was revealed that the commissioner is retiring after long service with the Bureau.

Control of access was one of many topics he touched on. He noted that while the standards adopted for the highway program are not unduly high, this phase has frequently been questioned. "Unless we preserve the future capacity of this national network through fully controlled, carefully planned access," said the Commissioner, "the present traffic carnage on our overcrowded highways will continue, and the costly new system which we count on so heavily, will not be able to carry the traffic of 1975.

"As engineers and highway officials, we have every reason to believe that with carefully planned entrances and exits the Interstate network can be made the safest, most efficient transportation system ever devised. Without this all-important safeguard, the other standards would be quite ineffective. That is why the law itself calls for this design feature."

Retiring Commissioner Curtiss rests after 38 years of distinguished public service with the Bureau of Public Roads. He joined the Bureau in 1919 as Assistant to the



Chief, rose to Chief of the Division of Control in 1927 and to Deputy commissioner in 1943, becoming Commissioner in 1955.

He thus was head of the Bureau during the difficult period that saw the passage of the milestone-marking Federal-Aid Highway Act of 1956 and the preparation for, and launching of the huge new road-building program.

Mr. Curtiss has been an active member of a number of policy making committees of AASHO and of the Highway Research Board, including their executive committees. In November 1957, the joint board of award of the AASHO, the HRB, and the American Road Builders' Association presented to Mr. Curtiss the George S. Bartlett Award, the highest recognition in the highway field, for his outstanding contributions to highway progress.

quantities.

The AASHO delegates heard from top congressional leaders on highway matters. Senator Albert S. Gore (D., Tenn.) member, Senate public works committee, and chairman of the roads subcommittee, said that his committee will convene early in 1958 to consider changes in the 1956 highway act," which must always be kept dynamically under review."

One of the problems will be that of whether to approve added mileage to the Interstate system, noted Senator Gore. He said there is no reason to add new routes just because a state requests it.

The Senator made note of recent scandals in state highway administration, and said that congressional committees are determined to see that the tremendous road program is a clean program.

Representatives George H. Fallon (D., Md.), member of the House public works committee and chairman of the roads subcommittee, pointed to the gradual increase in federal aid for the primary, secondary and urban systems. These categories will receive \$925 million aid in the 1960 fiscal year, and should soon thereafter be on a \$2 billion annual basis including state matching money. The Congressmen observed that a healthy development of the ABC systems is necessary to properly support the Interstate network.

This speaker urged the state department engineers to step up their public relations effort. The people still are only beginning to understand the great size and importance of the Interstate road program, he said. If the state engineers can make the public better informed, it will help congressional leaders in turn to support the highway program with constructive new legislation as needed.

• Committe Sessions. In the course of 44 committee meetings held during the five-day convention, delegates wrestled with many aspects of planning, construction and maintenance problems. Most popular sessions were those in which:

 Right-of-way men exchanged ideas for stepping up acquisition of the thousands of parcels of land that lie in the path of the proposed new highways.

 Highway administrators admitted the increasing importance of their public relations responsibilities and determined to give more emphasis

#### AASHO CONFERENCE

(Continued from page 63)

can the engineers know what these volumes will be, if no surveys have been made of present traffic intensities, or of where people want to travel?" Also lacking often are projections which will show which way a city hopes to grow—whether various metropolitan areas are to be developed for industry or for multiple-dwellings, how urban redevelopment will fit the picture.

"These are all things the engineer must know," Tallamy continued. The engineers are seeking sound answers to urban highway location planning, and in their public appearances they should emphasize to the public that they are doing the job right, in order to gain

public confidence.

On geometric design for Interstate projects, Tallamy urged that each dual roadway be considered at least partially as a separate roadway in developing its design. This gives the designer greater flexibility, and produces often a lower-cost road as well as one more pleasing to the eye. "Take advantage of cheap land," he counseled. "Seek side-hill locations, patches of woods, rock outcroppings." All features which help break the monotony. The designer himself is often surprised at the economy that results. As an example, Tallamy cited Maryland Route 240 where independent design of the two roadways saved an estimated \$100,000 a mile over rigidly pair roadway design, the saving being chiefly in earth to getting their story to the public.

• Design engineers nosed cautiously into the jungle of modern engineering methods of photogrammetry and electronic computation where new techniques are born rapidly.

Traffic and maintenance engineers reviewed their first experiences with operating completed segments of the new expressways and debated policy on a whole new set of traffic control problems.

#### **Public Relations Popular Subject**

Out of these meat-and-potato confabs came a number of interesting developments. One of these was the recognition of public relations as more than a step-child operation in highway department administration. While it is true that only a handful of department PR men were present in these crowded sessions, the ones who were left at home can take heart from this indication that their bosses have, at last, acquired a very proper respect for this highly skilled operation. More than one top official at the convention admitted that their experience in the now-required public hearings has opened their eyes to the importance of "selling" the highway story, through the press, radio and television.

General Louis Prentiss, executive vice president of the American Road Builders Association, sensed this desire for practical PR pointers and gave the engineers a full-scale

10-point program.

A survey of state highway department PR activities revealed at the Chicago convention indicated that many states have a long way to go in this field. Others have well-staffed and financed units, headed

by professional public relations directors. (Report available from Committee chairman Harold L. Plummer, chairman, Wisconsin State Roads Commission, Madison, Wisconsin.) Highlights were:

• PR units are in existence in 31

 PR units are in existence in 31 states, and being organized in 8 others.

 Almost all states try to meet press queries, get out news stories and write radio spots. In some, however, even this important liaison with the public is haphazard, unprogrammed and unbudgeted.

 Only 28 states strive to produce an annual report, readable and appealing to the average taxpayer.

#### "Our Most Critical Period"

Federal Highway Administrator Bertram D. Tallamy told the officials that public relations will be their most important responsibility for the next two to three years. He pointed out, in certain tones:

"This will be our most critical period."

There are forces at work, he said, which can oppose and effectively delay highway projects, if highway officials do not win the good will and support of the public for their programs.

In urban areas, particularly, where highway locations will adversely affect the most people, engineers must put the idea across that a great many *more* will benefit from the new facilities than will be inconvenienced.

"After the motorist has ridden over a few of your new expressways he will become an ardent supporter," Mr. Tallamy said, "but until then you will have to go it alone" The political editor of a Wisconsin newspaper bluntly reminded the highway departments that this is one area in which they have not distinguished themselves. Highway officials are commonly regarded as "those damned bureaucrats at the state capitol," said William A. Norris of the Milwaukee Sentinel.

"You must find out how to tell your story effectively to the public -more effectively than is generally the case today."

Newspapers would give highway departments much better treatment, he suggested, if officials would:

 Give them more advance information about relocations and improvements, more detailed reasons "why a highway must go here and not there."

"Please bear in mind that a public protest, whether it is justified or not, is news that the paper must print," Mr. Norris pointed out. "But if we have a ready and a good defense of the highway department, we can present it editorially along with the news."

 Put their press relations responsibilities in the hands of a competent public information director, professionally trained to interpret highway statistics and policy to the layman.

 Produce maps with the specific requirements of newspaper production in mind. Furnish mats of these maps to the weeklies and smaller dailies.

 Make regular periodic reports to the press on the progress of major projects.

 Make immediate announcements of delays in construction schedules and explain them.

Although the necessity of holding open hearings on Interstate route

#### **Bugge Pays Tribute to Federal-State Relationship**

AASHO president W. A. Bugge of Washington state, in his address at the Chicago convention, took a look at the past year's problems and the ones ahead. He dwelt at length on the right-of-way acquisition task, and what the state legislatures must do about it in some states. He also reflected on the growing role of research in future highway development. Particularly important was his distinction between factual data collection, of which the highway engineers have done much, and creative thinking based on such facts.

President Bugge also took this occasion to pay tribute to the effective relationship that was built up by Thomas H. MacDonald and which must be safeguarded as new lawmakers seek to keep the federal and state legislation up to date.

"MacDonald is no longer with us," said Bugge, "but

we have the monument he built with his heart, his intelligence and his devotion to duty. He designed this relationship . . . and saw it grow into one of the finest such instruments ever developed." Of course, there is danger that this relationship may be changed, he warned, adding, "If the states cannot spend their share of highway funds effectively, the federal government will spend it, and that means a subordination of the role of the state highway departments."

The obvious answer, said Bugge, is to become a vigorous, efficient state department with enlightened leadership. The manner in which the states discharge their obligations under the present large-scale program will determine largely what role the highway departments will play in the years ahead.

location was credited with the nationwide new emphasis on public information, the AASHO Public Relations Committee found that around the country state highway departments are conducting such hearings in a great variety of ways. Speaking of a survey of the states of this question, Chairman Harold Plummer of Wisconsin, remarked:

"Most surprising aspect of the replies is the light regard many states hold for the public hearing

process."

Frequently, the poll revealed, this opportunity for establishing rapport with the taxpaying public is relegated to a minor official. Only in 16 states does the chief administrator preside.

When asked who does preside at public hearings, the states gave a wide range of replies. It is obvious, Mr. Plummer opined, that the states are not in agreement as to the purpose a public hearing serves. Almost all the departments replied that they consider this activity a means of building public good will and support. However, the public relations staff (which should be the best-trained unit in the department for interpreting the organization to the public) helps to arrange the hearing in only half the states.

Other speakers stressed the point that it is extremely important that highway departments publicize their continuing efforts to properly maintain the farm-to-market systems; that all the state's efforts and money are not being spent on Interstate projects. Also, the officials were reminded, it should repeatedly be pointed out that the 90% federal aid on Interstate projects will make it possible for the state to spend more on its other highways.

#### Contractors At AASHO Urge Greater Radio Use

A prominent Eastern contractor made a strong case for use of twoway radio in roadbuilding operations, at the AASHO convention.

Nello L. Teer, Jr., president of a Durham, N. C., firm that has handled jobs in numerous states, urged wider use of this effective management device. Here are excerpts from his talk at the Chicago

meeting:

"Two-way mobile radio has enabled the constructor to reach a degree of efficiency that was previously impossible and earns an indispensable place in the highway builders inventory. There have been many thousands of meetings in highway departments and contractor organizations all for the purpose of increasing the efficiency of manpower and equipment resources. It is doubtful if any suggested method of operation or the development of any piece of equipment offers the potential for efficiency that is offered by the utilization of mobileradio units.

"Contractors of necessity must be thoroughly convinced before making investments in new tools that their money will be returned and with the anticipation of a reasonable profit. "Construction Equipment," a trade magazine, recently conducted a survey which showed

• 11% of construction firms in general own and use two-way radio

equipment, each having an average of 7.16 units.

• 12% of the earth moving firms and 17% of the paving firms have radio, each with an average of more than 8 sets.

The survey also showed that: 36% of the municipal highway maintenance departments

18% of the county highway de-

partments

48% of the state highway departments all use two-way radio. For exact numbers, municipal, county and state highway departments, as of the first of January, 1956, had almost 17,000 total base and mobile transmitters authorized (not necessarily in use) by the FCC.

#### Once Sold, Always Sold

"It is almost impossible to secure accurate figures on private highway construction firms since some firms are licensed in the special industrial class and others in the citizens band, and FCC does not break the classes down into the type of users. We do know that once a highway contractor is initiated into the advantages of mobile-radio, he never gives up its use, but on the contrary continues to use and depend on his radio more and more.

"Although only 17% or 18% of the grading and paving contractors are now using two-way radios it is believed that this group, being

#### McMILLAN HEADS AASHO

Officers and directors elected for 1958 at the recent AASHO convention are:

President: C. R. McMillan, chief highway commissioner, South Carolina, succeeding W. A. Bugge, director of highways, Washington.

ist Vice-President: R. R. Bartelsmeyer, chief highway engi-

neer, Illinois.

Executive Committee: Elected at recent meeting, W. M. Leech, Tennessee: Rex M. Whitton, Missouri; D. C. Greer, Texas. Also continuing on committee are John Morton, New Hampshire; C. D. Curtiss, BPR; D. H. Bray, Kentucky; Mark U. Watrous, Colorado; T. C. Robbins, Mississippi; L. N. Ress, Nebraska; and John W. Johnson, New York,

Treasurer: E. L. Roettiger, Wisconsin.

Executive Secretary: A. E.

Johnson continues in this position, with headquarters 917 National Press Building, Washington, D. C.

larger contractors, will produce more than 50% of the work volume. Many additional contractors plan to equip themselves with radio, but due to various reasons, have postponed their purchase.

"A successful contractor must maintain close control over his manpower and his equipment. Present day equipment costs are so unusually high that the contractor cannot afford surplus inventory and to hold cost in line, maximum utilization of each piece of equipment must be realized. Mobile-radios enable the contractor or his supervisory personnel to be in constant communication with the key members of his organization and to effectively direct the movement of men and equipment to their maximum use.

"Material flow can be started or stopped or regulated to meet each job condition. Mobile-radio extends the eyes of top personnel into numbers of areas impossible to otherwise reach. Our company uses 23 master stations and 85 mobile units, and it would be impossible for me to recite the thousands of ways that constantly remind us of our dependence on radio equipment. It's no longer a matter of

(Continued on page 112)



Four of many Caterpillar-built machines on the Great Falls Paving Project: two DW15 (Series E)-No. 428 LOWBOWL Scrapers, a D8 Tractor and a No. 12 Motor Grader. The blocks in this area of the project are 430 feet long, and the street width 35 feet. Excavation of heavy clay soil averaged 525 cubic yards a block here.

#### HIGH PRODUCERS IN NARROW STREETS

New CAT\* DW15 (Series E)-No. 428 LOWBOWL Scrapers set fast pace on \$4,186,721 Great Falls Paving Project

Four firms associated under the name of City Constructors were awarded the contract to handle the Great Falls Paving Project, Montana. The project involved the reconstruction of about 900 blocks. Among the new Caterpillar DW15 (Series E)-No. 428 LOWBOWL Scrapers on the job were these two units, owned by S. Birch Inc. & S. Birch & Sons Construction Co. Here you see them at work in heavy clay soil on a typical 35-foot-wide street.

The street was excavated to the depth of a foot for rebuilding. Loads were restricted to avoid damage to utilities and improved streets. Averaging 12 cubic yards a load, each unit made five trips an hour on a 3,000-yard round-trip haul through traffic.

This is just one of many jobs where the new DW15 (Series E) unit proved itself a high producer. In fact, in reports from other jobs, this point is clear: When the new DW15 is compared with competitive units of similar capacity, it leads the pack in performance. Many factors contribute to its superiority. For example, it has a high travel speed of 37.2 MPH with the stability of four wheels. Very maneuverable, it turns within a 35-foot diameter, and its stability permits short turns at high speeds. Its wide-section 26.5 x 25 tires provide maximum flotation. And the new No. 428 Scraper's LOWBOWL design means a faster loading rate clear to the end of the loading cycle.

The new DW15 (Series E) delivers 200 HP (maximum output capacity). The new No. 428 has a capacity of 13 cubic yards struck, 18 cubic yards heaped.

... for more details circle 246 on enclosed return postal card

Your Caterpillar Dealer, who backs you with prompt service, will be glad to show you cost-of-operation figures on actual jobs. Better still, name the date—he'll demonstrate, right on your job!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

#### CATERPILLAR\*

\*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

ONE GOAL: To concentrate
our capabilities, resources and
experience on the design,
experience on the design,
manufacture, distribution and service
of job-tested heavy equipment.

#### THE LATEST, MOST COMPLETE INFORMATION ON THE NEW HIGHWAY PROGRAM—FREE

Here in one booklet is all the latest information on the new highway program. Find out how, where and when the money will be spent; standards for the new freeways; final rautes of the Interstate System. Everything you need to know to share in the greatest construction job in history.

DEPT. RS-1, Caterpillar Tractor Co.

Please send me immediately
\_\_\_\_\_ copies of "The Road Ahead."

Company

Address

City

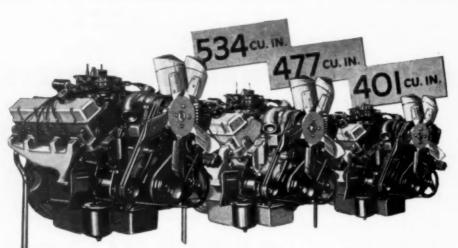
Zone

State

# FORD makes the

## 3 all-new Super Duty V-8's

- Gross horsepower up to 277
- Gross torque up to 490 lbs-ft
- Modern Short Stroke design
- Three-stage cooling system
- Machined combustion chambers
- Sodium-cooled exhaust valves
- Stress-relieved block and heads
- Pyramid-type connecting rods
- Internally mounted oil cooler
- Two-quart oil filter
- · Water-jacketed intake manifold
- Submerged-type electric fuel pump



277-hp Short Stroke V-8 Torque: 490 lbs-ft @ 1800-2300 rpm

260-hp Short Stroke V-8 Torque: 430 lbs-ft @ 1800-2300 rpm

226-hp Short Stroke V-8 Torque: 350 lbs-ft @ 1800-2300 rpm



#### 10 all-new Extra Heavy Duty Series

GVW's up to 51,000 lb. For '58, ten new basic series are added to Ford's already extensive Heavy and Extra Heavy Duty line. Four new Tilt Cabs, four new Conventionals, and two new Tandem models offer GVW ratings up to 51,000 lb.

GCW's up to 75,000 lb. New T-950 Tandem is rated for 75,000-lb. GCW. Biggest single-rear-axle models are rated for 65,000-lb. GCW.

Front axle capacities up to 15,000 lb. Choice of three front axles in most new Ford Extra Heavies. Rated capacities of 9,000 lb., 11,000 lb. and 15,000 lb.

Rear axle capacities up to 29,000 lb. Wide choice of rear axles includes single-speed and two-speed, single

reduction and double reduction types. Capacities range from 18,000 lb, to 29,000 lb.

Bogie axle capacities up to 38,000 lb. For '58 there are two new Extra Heavy Duty Tandem Axle models. The new T-950 Series features a tandem rear axle assembly rated for 38,000 lb. New T-850 Series offers choice of 28,000- or 34,000-lb. bogies.

New highway transmissions. Roadranger transmission is available in all ten new Ford Heavies and Extra Heavies. Up to 33% less shifting, "Short Fourth" highway transmissions also available on "F" and "C" Series. With these new transmissions, engines operate in peak horsepower range with greater fuel economy.

# big move for 58

up to 534 cu. in. New Series T-950 Tandem model is biggest capacity Ford truck ever built! Rated up to 51,000-lb. GVW-75,000-lb. GCW. New 534-cu. in. Super Duty V-8 provides exceptional horsepower and torque with

## FORD TRUCKS COST LESS

rugged durability.

LESS TO OWN ... LESS TO RUN ... LAST LONGER, TOO!

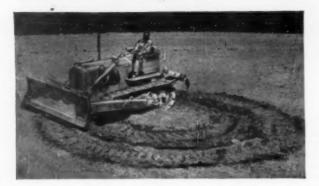
. . for more details circle 259 on enclosed return postal card

ROADS AND STREETS, January, 1958

# **ONLY FROM OLIVER**



# ...new POWER-TURN steering speeds up your angleblade work Picture a tractor that can hold a straight line



Even on sharp turns like this you have full power on both tracks! There's no speed transfer from one side to the other. Each track is always working at full power and under complete control. You never lose power en any turn. Two simple steering levers make operation easier.

Picture a tractor that can hold a straight line while pushing or pulling the heaviest side draft loads. No drift! That gives you full power on both tracks on every turn—sharp or gradual. That does away with cross-steering downhill. That's the Oliver OC-12.

POWER-TURN steering pays off all around—in bigger production, in smoother operation, easier maneuvering, less fatigue. It's more dependable, too, because it's simpler. Planetary reduction gears for each track give you full control at all times.

Expect a new experience in tractor performance when you sit at the controls of the new OC-12. And you can expect greater earning power, too. Ask your Oliver distributor to demonstrate. Or write us for literature.



#### THE OLIVER CORPORATION

Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

. . . for more details circle 290 on enclosed return postal card





4:30 p.m.

5:15 p.m.
Rush hour traffic moves safely

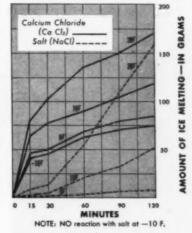
#### COLUMBIA CALCIUM CHLORIDE

makes streets and roads safe faster

Speedy ice and snow control keeps towns and highways running smoothly, holds fatalities and injuries down. And here are new test results proving once again that Columbia Calcium Chloride brings safety to surfaces faster. This skid-proofing chemical melts 8 times as much ice within thirty minutes after application as is melted by salt. Here are comparative results over a two hour period:

Better order an ample supply of Columbia Calcium Chloride today through your nearest Columbia-Southern District Sales Office. AMOUNT OF ICE MELTED 15 TO 120 MINUTES

350 Grams ice in 7" by 11" pan 40 Grams chemical (based on 100% NaCl or CaCl<sub>2</sub>)



Columbia CALCIUM CHLORIDE



Columbia Calcium Chloride is available in both High Test Flake (94-97% CaCl<sub>2</sub> content) and Regular Flake (77-80% CaCl<sub>2</sub>).

#### COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER - PITTSBURGH 22 - PENNSTLYANIA



DISTRICT OFFICES: Cincinnati • Charlotte Chicago • Cleveland • Boston • New York St, Louis • Minneopolis • New Orleans Dallas • Houston • Pittsburgh • Philadelphia San Francisco

IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

Safeguard Winter Traffic with Columbia Calcium Chloride

... for more details circle 250 on enclosed return postal card

ROADS AND STREETS, January, 1958

In One Season, Maryland

Places Million Tons of



Bagged calcium chloride is emptied into the feeding hopper by hand at Fry's Flintstone, Md., location. Note the even "skunk stripe" of the binder material on the aggregate belt running off to the left.

#### Ca CI Stabilized Base Mix

Four contractors handled mix production with big-tonnage plants. Here are some of the details.

HURRYING TO GET IN under winter's wire, the several contractors in the stabilized base program in Maryland completed placement of nearly one million tons of calcium chloride mix during 1957.

Production of all of this tonnage was handled by four contractors although more were involved in the actual laying and in the placement of black-top surface material over the base. Biggest producer of the base material, all of which is AASHO and Maryland Highway Department Specification T-88, was Fry Coal and Stone Co., with headquarters at Mercersburg, Pa. This company furnished base material from three locations; Flintstone, Pinesburg and Corriganville, Md. At each site they set up a new (introduced in 1957) Barber-Greene Model 828 stabilization plant. Two of the

other three producers also used 828 stabilization plants: M. J. Grove Lime Co., of Frederick, and Harry T. Campbell & Sons of Baltimore. The fourth contractor produced about 20,000 tons using a Cedarrapids plant.

Fry's share of the contracts outweighed the others, their plants at Corriganville and Flintstone producing about 55,000 and 40,000 tons respectively, while the set-up at Pinesburg delivered more than 440,000 tons. This combined tonnage was placed by three contractors—E. D. Plummer & Sons, Chambersburg, Pa., Bester-Long, Inc., Hagerstown, Md., and Wright Contracting Co. The last named, whose headquarters are in Columbus, Ga., held contracts for 300,000 tons of the total.

The Maryland State T-88 Specifications which govern all of the stabilized base production required the following gradation:

Two in. size, 100% passing; 2 in., 75-95%; ½ in., 60-75%; No. 4, 45-60%; No. 10, 23-48%; No. 40, 15-30%, No. 200, 5-12%. Seven pounds of calcium chloride per ton of aggregate.

(Continued on page 81)



Some hint of the capacities encountered on stabilization jobs may be gained from the flood of mixed material leaving the 5-yd. discharge hopper—largest trucks filled in three or four dumps.

In the Road Building Industry—



# Eaton 2-Speed Axles Keep Trucks on the Job —Cut Operating and Maintenance Costs

Pulling out-of-the-hole in off-the-highway operation, making time on the hills, maneuvering in heavy traffic, highballing on the open road — each calls for a different gear ratio to assure maximum efficiency, economy, and safety. Eaton 2-Speed Axles double the number of available gear ratios, permitting the driver to use the one best suited to road, load, and traffic conditions. This use of the right gear ratio for every situation permits engines to run in their most efficient and economical speed range, reducing stress and wear on all power-transmitting parts. Not only do Eaton 2-Speed Axle trucks make more and quicker full-load trips, but they do it at lower operating cost and with less maintenance; they stay on the job and out of the shop. Even under the roughest conditions, trucks equipped with Eaton 2-Speeds last thousands of miles longer — and they're worth more when traded in.

More than Two Million Eaton Axles in Trucks Today. For complete information, see your truck dealer.



## EATON

JEACTURING COMPANY

MANUFACTURING COMPANY
CLEVELAND, OHIO

RODUCTS: Engine Valves. Tappets. Hydraulic Valve Lifters. Valve Seat Inserts. Jet Engine Parts. Hydraulic Pumps
Motor Truck Axles. Permanent Mold Gray Iron Castings. Forgings. Heater-Defroster Units. Automotive Air Conditioners
Fastening Devices. Cold Drawn Steel. Stampings. Gears. Leaf and Coil Springs. Dynamatic Drives, Brakes, Dynamometers... for more details circle 256 on enclosed return pastal card

ROADS AND STREETS, January, 1958



#### **EIMCO 105 TRACTOR FEATURES THAT MEAN SUPERIORITY!**

- 1) Driver sits up front full visibility.
- 2) Fast Maneuverability independently driven tracks provide spin turns . . . reduce wear on track shoes.
- 3) Low Center of Gravity provides stability and safe operation.
- 4) Torque Converter multiplies engine power as required.
- 5) Unitized Construction hydraulically actuated clutches and transmission are housed in a single unit and operate in oil. Clutch adjustments and gear reversal are eliminated.
- 6) Eimco 105 Tractors are built to last and offer a new mechanical concept. They put conventional tractors in the "horse and buggy" class.

Write Eimco for complete information.

#### IMCO CORPORATIO

Salt Lake City, Utah-U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City



. . for more details circle 258 on enclosed return postal card

ROADS AND STREETS, January, 1958

 Despite the high tonnages produced, the Barber - Greene 828 stabilization pugmill plant is a simple setup as illustrated. The bagged calcium chloride is kept in the shed (left foreground).



#### STABILIZED BASE MIX

(Continued from page 78)

In practice, the water content of the mix when leaving the pugmill ranges from 51/2 to 7 percent.

Because of a variety of cold-feed systems employed with the plants, the state inspectors took across-the-belt aggregate samples ranging from 1 to 4 ft. in length. These were quartered in the usual way and the gradation checked.

Morning and afternoon checks on the Flintstone plant indicated general down-the-middle compliance with specifications. One such pair of daily checks indicated:

Two in. size, 100% passing; 1 in., 92-94%; ½ in., 73%; No. 4, 57-58%; No. 10, 39-41%; No. 40, 16%; No. 200, 6-7 percent.

Understandably, with total tonnages in the ranges mentioned, hourly capacities were of considerable importance and the Barber-Greene stabilization plants were set up to produce between 350 and 500 tons per hour. These variations depended on the type of cold feed system employed; number of trucks available for haul to the paving site, etc. The Pinesburg plant operated by the Fry organization averaged from 400 to 430 tph except when hampered by weather. The Fry Flintstone plant began at about 300 and upped this to over 400 tph. Their third plant at Corriganville, the last to go into operation, averaged about 300-350 tph.

Water supply, too, for this operation posed a problem. At Pinesburg, Fry drew from the Potomac River with a 3-in. centrifugal pump. Storage for 40,000 gal. was maintained in two 20,000-gal. tanks. At Flintstone the water was trucked in from a nearby stream and a 20,000-

gal. storage tank provided at the plant site. A similar system was used for the Corriganville operation located along a small stream.

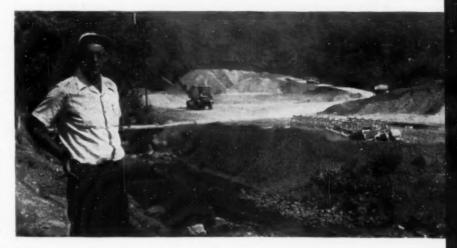
At all locations, the calcium chloride was obtained in 100-lb. sacks which in turn were dumped by hand into small conical feeders, beneath which were small Syntron feeders. These were calibrated in

correlation with the aggregate supply to maintain the ratio of 7 lb. of calcium chloride per ton of aggregate.

The Barber-Greene plants, the most recent addition to the company's line of paving and mixing equipment, are simple units designed expressly for the production of any stabilized materials using

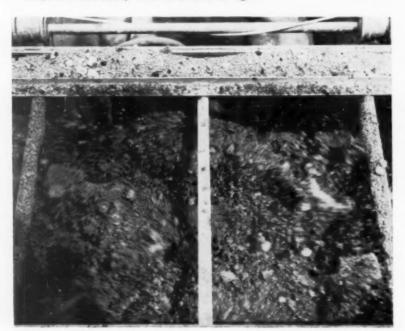
- A Barber-Greene belt conveyor serves to carry aggregate from stockpiles to Fry's Pinesburg plant. This is the coarse for 1 to 2 in. aggregate.
- Leonard Fry scouts the layout of his stabilization set-up near Corriganville, Md. The stream in the background later provided the water for the mixing operations.







The whole sequence of stabilized base laying is seen in one picture. Bester-Long's Jersey spreader receives mix from the plant. After spreading the mix is compacted with the steel-wheel roller, then with the rubbertired roller and finally with the steel roller again.



 Even the high-speed camera fails to halt completely the rapid mixing of stabilized material. It illustrates the movement taking place in all sections of the pugmill.

cement, calcium chloride, etc., but are not intended for use with asphaltic binders. The familiar twinshaft mixing pugmill system is incorporated with some interesting exceptions. No pugmill liner plates are employed, as the material itself forms a liner while mixing. This excess material is, in practice, washed from the pugmill at the end of a day's operation. A 5 cu. yd. hydraulically controlled discharge hopper which is much larger than that found on even the largest asphalt plants, and a dam gate, control the mixing time by

maintaining a constant depth of material in the pugmill.

The water supply for this model plant is handled by a 150 gpm centrifugal pump and a positive displacement type meter. The pattern of the pugmill spray bars is such as to insure coverage of all sections of the pugmill at all times.

Generally speaking, the stabilized base mixes produced during 1957 in Maryland replaced the state's previous base practices which called for two 6-in. courses of penetration macadam, using 3½-in. minus material

The thickness of the base of stabilized course was varied, depending on the estimated traffic load for the road involved. For instance, the mix produced by Fry's Pinesburg plant was used by E. D. Plummer & Sons to put down a 4 in. base near Keedyville, Md. A Barber-Greene asphalt finisher handled this base work and then was used to finish the project with a 11/2-in. wearing course of bituminous hot mix. In the same area, but on a job of relocating State Route 34, the contractor put down the same mix with a Jersey spreader in three 51/2. in. loose lifts which were compacted to 4 in. with a steel wheel roller, then with rubber-tired rollers and finally with a third pass with the steel roller. Three such lifts were placed and rolled to achieve 96 percent compaction, and a total base thickness of 12 in. compacted.

The Flintstone plant's mix was furnished to relocate U.S. 40 over Martin and Polish Mountains. The actual construction was done by Bero Construction Co., of Buffalo, New York.

For a first venture into the mixing field, contracts covering between 500,000 to 600,000 tons in a single season might seem a bit high. But the Fry organization relied on their long experience in the production of stone aggregates to carry them through. Their venture is considered a most successful one. Their previous experience has been in producing a variety of limestone products including construction aggregates, flux stone, aglime and rock dust, widely used in the area as an explosion dampening material in coal mining.

# Road contractor's 6-Payhauler fleet outhauls competitive rigs...up to 2-to-1!

"When we pulled a '65' Payhauler unit off the stockpile for another job, two of our other off-highway trucks were needed to replace it," reports Supt. Virgil Rice, for Cage Brothers, San Antonio, Texas. This Payhauler trio is running circles around other outfits, on a 12-mile road-rebuilding project near Snyder, Texas!

Prove the get-away surge, and up to 25% faster haul speed of an International Payhauler—the result of bonus turbo-charged diesel power; road-matched and load-matched gear choice; and the power-cushioning leverage of planetary drive axles.

Try Payhauler "pick-up truck" spotting ease. Exclusive high reverse, "zip-around" power steering, and grade-beating power get the credit! See how 12-second dumping with double-acting hydraulic hoist speeds the cycle. Measure the effect of Payhauler operating ease, and downgrade safety, for example, of positive Torquatic braking! See your International Construction Equipment Distributor for a demonstration!



# International® Construction Equipment

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors...Self-Propelled Scrapers...Crawler and Rubber-Tired Loaders...Off-Highway Haulers...Diesel and Carbureted Engines...Motor Trucks...Farm Tractors and Equipment.



"I'm just sorry all our haulers aren't International Payhauler units," adds Supt. E. R. Rice. "They haul bigger loads, faster; give less trouble; and operators like them better than our other new haul units." This Mr. Rice rides herd on another Cage Brothers' 3-unit Payhauler team—setting a fast tonnage pace, hauling limestone for highway resurfacing, near Abilene.



#### International Harvester Co. 180 N. Michigan, Chicago 1, III.

Gentlemen

☐ I am a contractor. ☐ Am interested in becoming a contractor. ☐ Am an equipment operator (please check square that applies). Send me Payhauler Catalog (CR-603-G).

#### what's it worth to have a full 200° operating arc?



#### CKHOE lets you cover more area from ONE POSITION!



A Davis Loader and Backhoe combination will put money in your pocket by outperforming any other rig - pound for pound, dollar for dollar.



**EXCLUSIVE FLUSH-DIGGING** — Entire most and boom assembly shifts from center to either side for flush digging alongside buildings, fences, hedges, and other obstructions. Only Davis has this advanced feature.

Versatility, convenience, and speed ... These are your advantages when you own a Davis Backhoe with continuous 200° arc. Here's how these advantages let you profit more on every job:

VERSATILITY - Side mounted, you can dig flush alongside walls, etc....or have greater reach in right-angle digging operates in places that are inaccessible to other rigs. You can dump close to the hole ... dump wide ... or direct-load into a truck!

CONVENIENCE - Davis rigs are entirely hydraulic. Individually controlled non-slip stabilizer feet let you level-up and hold on slopes . . . tilt for bell holes. Large, well-padded seat may be adjusted for tall or short men. Both seat and controls swing with the boom, so you always face your work.

SPEED - Davis works fast! The 10,000 pounds of breakaway created by its rams gives you all the power you need to dig in frozen ground or asphalt. A wide variety of quick-change buckets expedites production by letting you select the most efficient tool for any kind of project. Davis' design gives you an unobstructed view of the entire work area. You don't have to depend upon shouts and hand signals for guidance. Detaches in five minutes if you want to use just the tractor and loader for other jobs. Priced Competitively Low!

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

#### SOLD AND SERVICED EVERYWHERE BY BETTER DEALERS

For the name of your nearest dealers call Western Union by number and ask for Operator 25.. or write direct. Please specify make of tractor.



MASSEY-FERGUSON INDUSTRIAL DIVISION

MASSEY-HARRIS-FERGUSON, IN

1009 S. WEST STREET WICHITA 15, KANSAS

## **New Products**

Reader Service Numbers on Attached Postage-Paid Postal Card

#### **Dual Roller-Compactor**

Deep penetration vibratory compaction and static-weight surface rolling can be accomplished in a single operation by a new road building machine, the Austin-Western Roller-Compactor.

When not needed as a vibratory compactor, the machine serves as a regular three-wheel, 10 to 12 ton variable weight road roller.

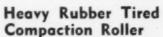
First displayed at the 1957 Road Show, the roller has made test jobs in Oklahoma, Louisiana and Pennsylvania which are stated to have shown that the machine can realize large savings in the cost of highway construction. The state of Pennsylvania, the first to do so, has approved the machine for complete compaction of stone bases aggregated in lifts up to 10 in. thick.

The vibratory portion of the present machine is a self-contained unit which can be used only with Austin-Western model 102–10 to 12 ton variable weight rollers. The vibratory unit consists of a 3-shoe vibrator assembly, an independent hydraulic system and a separate 61 hp gasoline engine.

Vibratory compaction is accomplished by two steel shoes 277/8 in. wide and 251/4 in. long, and a center shoe 251/2 in. wide by 25-14 in. long, actuated by hydraulic pump-gears which operate in unison to produce a straight line vibration across the

full 8234 in. length of the vibrator. Each shoe weighs 450 lb. and vibrates through a vertical distance

brates through a vertical distance of 1/4 in. at the rate of 2100 to 2200 times a minute.



A new 30-ton self-propelled rubber tired roller has been announced



Bros 30-ton Roller

The vibrator shoe assembly is lowered to working position, or raised when the unit is not in use, by a valve and lift cylinder powered by the hydraulic steering circuit of the roller.

Austin-Western Division, Baldwin-Lima-Hamilton Corp., Aurora, Ill.

For more details circle 101 on Enclosed Return Postal Card.

by Bros Road Machine division.

Called the SP-730, this new roller on controlled tests in Ohio, is stated to have produced densities averaging from 101.5% to 103% on asphalt surfaces in one or two passes on base aggregate tests, and obtained the 95% densities specified by the state of Iowa in two passes. Design of this new roller features three wheels in front and four in the rear, with full oscillation to provide even flow of compaction pressures. Rear wheel pairs have positive chain drive from power takeoff.

The SP-730 is equipped with torque converter drive to provide smooth, even transmission of power to the drive wheels. It is powered by a 95 hp diesel engine which develops 1800 rpm at operating speeds. Standard equipment includes front and rear lights and cocoa mats. Both smooth face and tread tires are available.

Bros Incorporated, Road Machinery Division, RS-1, 1057 Tenth Ave. SE., Minneapolis 14, Minn.



Austin-Western Roller-Compactor

For more details circle 102 on Enclosed Return Postal Card.



#### Unveil New 12-Tractor, 124-Model Line

A new line of wheel and crawler tractors featuring Case-O-Matic Drive has been unveiled by J. I. Case Company, Racine, Wis. A "world premiere" drew 3,500 dealers and dealer prospects to Phoenix, Ariz., in November. Eight wheel and four crawler units were shown and demonstrated in 124 models—"presenting, for the first time, real automotive styling," according to Marc B. Rojtman, executive vice president.

The highlight of the new line is the company's Case-O-Matic drive, which enables the operator to select the proper gear and then complete the particular job without shifting, stalling or using a clutch, it was This unit offers variable speed in every gear range with constant power to match each particular job," said Rojtman. "Added safety, an infinite number of speeds in every gear range and increased horsepower are only a few of the plus features resulting from this important new engineering development. Case-O-Matic drive gives the tractor the ability to instantly and automatically increase pulling power to match the requirements of the load. The unit has the further advantage of instinctively selecting the right ratio to meet field conditions.

For more details circle 103 on Enclosed Return Postal Card.

 The Case 800—providing infinite travel speeds in each of its eight working ranges, with power and speed adjusted to the load.





 The Case 810—80 hp engine builds up to 20,000-lb. drawbar pull, is equipped with Terramatic drive.

#### Lift Trucks

The line of G-3 gasoline powered industrial lift trucks recently introduced by Yale & Towne in capacities of 15,000 to 20,000 lb. is now being made available with fully automatic transmission for instantaneous full power and faster cycle operation.

The transmission is a combination of a torque converter and a planetary transmission stated to combine all the desirable operational characteristics of a hydraulic torque converter and a fluid coupling for the transmission of engine power.

Smooth starts and immediate power response are stated to be assured through the automatic, hydraulic multiplication of engine torque by the converter.

All gears in the planetary transmission are in constant mesh. The gear train is controlled by oil cooled friction clutches which are applied hydraulically and spring released to provide forward and reverse travel without the use of a clutch pedal.

Yale Material Handling Division, RS-1, The Yale & Town Mfg. Co., 11000 Roosevelt Rd., Pittsburgh 15, Pa.

> For more details circle 104 on Enclosed Return Postal Card.

#### New 18-yd Scraper

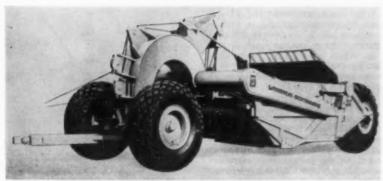
A new 18-cu. yd. scraper for use with tractors of 90 or more horsepower is the latest addition to the LeTourneau-Westinghouse line.

Designated the CT scraper it becomes a companion unit to the 27-cu. yd. BT Model introduced last year.

Both the new CT and BT are 4-wheel versions of the quick, easy loading "Fullpak" design pioneered in the firm's B and C Tournapull scrapers.

Like the other "Fullpaks" the new CT features a clean smooth bowl interior for minimum resistance in loading and unloading. The bowl floor which provides more than 46½ sq. ft. of load base, measures only 59 in. from the tip edge of the cutting blade to the face of the tailgate, minimizing the distance material must travel in the loading process.

Cutting a broad swathe, the CT's 91/2-ft. 3-section blade is angled precisely with the floor to further combat loading resistance. With only a 2-degree floor tilt, the scraper bottom remains nearly flat in loading



LeT-Wesco "Fullpak" Scraper

so that material does not have to travel "up-hill" to get into the bowl. For smooth accurate operation, rear wheels track well within cut width.

LeTourneau-Westinghouse Co., RS-1, 2301 NE. Adams St., Peoria, Ill.

For more details circle 105 on Enclosed Return Postal Card.

#### Airflomatic Feeder

A cement feeder which employs an entirely new principle is a recent development of Butler Bin Co. Known as the Airflomatic, it employs a cushion of high volume, low pressure air on which the cement rides.

The manufacturer states that the feeder provides high precision, positive feeding at all times. There are no moving parts, no pins or bolts to shear and no clutches to break, wear or slip; in fact all components which often cause trouble are eliminated. The current of air is supplied by a blower which also aerates and fluffs the cement in the overhead bin. No jets for addition-

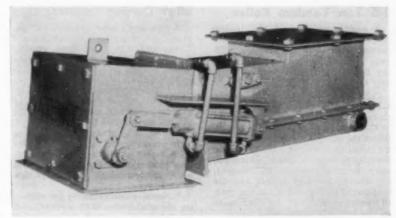
plants regardless of make, and it takes the place of vane feeders completely. Installation, is quick and easy and generally requires no rearrangement of the existing plant.

Butler Bin Co., Waukesha, Wis.

For more details circle 106 on Enclosed Return Postal Card.

#### **Dual Duty Pump**

A new Jaeger model 6 PH is specially designed for pumping large volumes of water at high speeds. It is stated to pump 1050 gpm at 60 lb. for pressure service or handle 100,000 gph at 10 ft. suction lift as



**Butler Cement Feeder** 

al air are required.

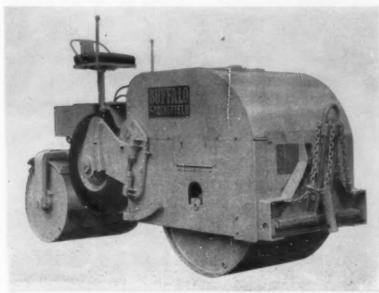
It is stated the Airflomatic feeder can be installed on all road batching or ready mixed concrete a dewatering pump offering a double advantage on wellpoint work: high pressure to jet, and big volume to dewater them. City water departments use the 6PH for pressure booster service and for pumping from emergency sources of supply.

The pump self-primes rapidly and holds prime indefinitely. Replaceable liner plate is adjustable for wear. Shaft is in high capacity ball bearing and has the Jaeger Lubri-Seal which is not only lubricated for long life but is accessible for inspection without dismantling the pump. Other special features are safety switches for high radiator temperature and low oil pressure, and complete 6 volt electric starting as standard equipment.

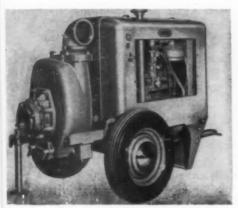
The Jaeger Machine Co., Columbus 16, Ohio

For more details circle 107 on Enclosed Return Postal Card.

New Products Continued on the Next Page



Buffalo-Springfield Tandem Roller



Jaeger 6PH Pump

#### 4-6 Ton Tandem Roller

A completely new 4-6 ton tandem roller with hydraulically operated transporting wheels and an exclusive "foldaway" feature has been announced by the Buffalo-Springfield Div. of Koehring Co.

Called the Buffalo-Springfield Model KT-8 portable tandem roller, the machine features an entirely new concept in the retractability of towing wheels. When the wheels are not in use, they are raised hydraulically and folded into the sides of the main frame. This eliminates the usual overhang of transporting wheels, provides greatly increase operator visibility and holds the overall operating width of the machine to an absolute minimum.

Because of the fold away wheel feature, the roller can be worked adjacent to obstructions, high curbs and forms without removing the wheels. The design also permits the advantage of exceptionally high ground clearance.

When the KT-8 is to be transported, the wheels are folded out and hydraulically lowered into towing position. Hydraulic operation results in considerable savings in time and consequent costs when the roller is transported from one job site to another.

The roller features a torque converter drive, which automatically matches power to variations in grades and materials and permits infinitely variable travel speeds from 0.5 to 5.3 miles per hour in either direction.

Buffalo-Springfield Roller Co., Division of Koehring Co., Springfield, Ohio.

For more details circle 108 on Enclosed Return Postal Card

#### Long Boom "Tractoloader"

Dumping clearance of 13 ft. 10 in, under the hinge pins, and 11 ft. 4 in. under the bucket cutting edge are now obtainable on the 2-cu. yd. TL-20D "Tractoloader" through the use of a special long boom arrangement announced by the manufacturer.

With this arrangement the TL-20D has a minimum reach of 3 ft. 3 in. at maximum height. At the 9 ft. dumping clearance the minimum reach is 4 ft. 6 in., which is 1 ft. 8 in. greater than that of the standard machine. It is recommended for use in materials weighing up to 2700 lb. per cubic yard.

The TL-20D with long booms has all the features of the standard model. These include the exclusive single lever speed and direction control of the power shift transmission, torque converter, planetary axles pin-connected to the frame, power steering, power brakes and 24 volt electrical system.

Tractomotive Corporation, Deerfield,

For more details circle 109 on Enclosed Return Postal Card.

#### High Output Concrete Gun

A new and higher production "Airplaco" concrete gun, the model 1600-H "Nucretor," has a maximum production or gunning rate of 9 cu. yd. per hour.

The gun is designed and recommended for gunning applications requiring high volume production but can be regulated and controlled for any production rate from 2 to 9 cu. yd. per hour. The manufacturer particularly recommends this new gun for ditch lining, swimming pool construction, bank stabilization, revetments and other jobs on which high production is a necessity.

Accessories are available for operating the model 1600-H "Nucretor" with the following standard air compressor sizes: 250, 315, 365, 500 or 600 cfm.



Air Placement "Nucretor"

Plant air may be used to operate this gun when available in sufficient volumes

Air Placement Equipment Co., 1009 West 24th St., Kansas City, Mo.

> For more details circle 110 on Enclosed Return Postal Card.

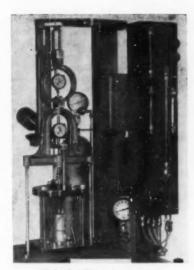
#### **Tests Soil Stresses**

Laboratory re-enactments of the three dimensional stresses in a given soil, up to the point of failure, are now possible with a triaxial test apparatus, manufactured by Soiltest, Inc.

The triaxial apparatus has been recently redesigned to incorporate a transparent test cell and specimen cap of cast acrylic plastic, which enable the operator to observe the specimen through every stage of the test, and to



Tractomotive "Tractoloader"



Triaxial Test Apparatus.

watch it fail.

The soiltest triaxial apparatus is designed for application in teaching and test laboratories and in offices of consulting engineers and contractors who are concerned with the performance of subsoils underlying heavy structures, such as dams, power plants, etc., or of soils for use in heavy-duty aggregates. Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.

For more details circle 111 on Enclosed Return Postal Card.

#### Special Incinerator Dump Body

A special incinerator dump body of 14 cu. yd. capacity has been built by Daybrook Hydraulic division for the city of New York.

Construction is all welded steel of heavy gauge for continuous 24-hr. operation. A special heat-resistant paint is used as hot ashes are dumped directly from incinerator into the body.



Daybrook Dump Body

Ashes are wet down, therefore the body has a special watertight tail-gate assembly air-operated by three air cylinders off the main air line. The body has leakproof drain ports.

Ashes are taken to scows to be dumped at sea. To prevent spillage in transit, the load of ashes can be completely enclosed by hydraulically-operated folding doors powered by four Daybrook sealed cylinders.

Daybrook Hydraulic Division, Young Spring & Wire Corp., Bowling Green, Ohio.

For more details circle 112 on Enclosed Return Postal Card.

#### Moto-Bug Hopper

Ability to carry 3000 lb. in an 18cu. ft. hopper or when used as a platform carrier is one of the many features incorporated in the new "Moto-Bug" introduced by Kwik-Mix Company.

As a forklift (at 15 in. load center)



Kwik-Mix "Moto-Bug"

the new model will raise 1500 lb. to 7 ft. Operator can tilt the forklift mast 10 degrees back and two degrees forward.

Carrying a full load, the "Moto-Bug" can climb a 25% grade; turn in an 84 in. radius if a forklift, 82 in. if equipped as a hopper or platform carrier.

A direct drive to the power flow transmission is stated to eliminate shifting, reduce vibration and allow a 12 mph forward or reverse speed. Low relative weight (only 1175 lb. as a hopper carrier) combined with high maneuverability, is stated to increase the number of job applications of the new model.

Kwik-Mix Co., Division of Koehring Co., Port Washington, Wis.

For more details circle 113 on Enclosed Return Postal Card.

#### **Heavy-Duty Grader**

Galion Iron Works has just added to their line the extra heavy-duty grader Model 160. It has a 6-cylinder, 4-cycle, 160-hp. Cummins diesel engine. Total weight of grader is 30,020 lb. with scarifier. Transmission is constant-mesh, with six overlapping forward speeds varying from 1.3 to 22.6 mph., and high and low reverse speeds.

The transmission and final drive are designed with ratios which reduce stress, wear, and maintenance to a minimum. A special cerametallic-faced engine clutch the "Morlife," is said not to be affected by heat or cold, and to give full-load power delivery, under any condition. It does not require a cooling system, and therefore greatly reduces servicing. The full-floating, two-piece axles carry no weight.

Listed as standard equipment are a 13 ft. x 29 in. x 3/4 in. hydraulic shiftable moldboard, combination hand and hydraulic booster steering, 14.00 x 24 ten-ply tires on both front and rear wheels, and four-wheel brakes. A hydratilt moldboard and creeper transmission are available as extras.

The Galion Iron Works & Mfg. Co., Galion, Ohio.

For more details circle 114 on Enclosed Return Postal Card.

#### Sand Density Cone



Soiltest Sand Density Cone.

In-place measurements of density of coarse-grained soils and gravels to be used for fill in for dams, levees, air bases, road beds and other heavy construction are made possible by a 12 in. sand density cone manufactured by Soiltest, Inc.

The large diameter of the apparatus



Galion Grader.

permits the digging of a large density holes and facilitates the removal of material. It also makes possible a very high degree of accuracy in the density determination.

Soiltest Inc., 4711 W. North Ave., Chicago 39, Ill.

> For more details circle 115 on Enclosed Return Postal Card.

#### **Materials Spreaders**

A new materials spreader, the "Century Junior," has been added to the



Century Junior Spreader

Seaman-Andwall Corporation 1958 equipment line.

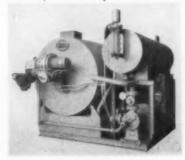
While designed for modest budgets, it is stated to be highly versatile, with uses ranging from conventional chip or sand spreading on fresh asphalt or tar to highly controlled spreading of abrasives, salt, or calcium chloride in ice control. The spreading mechanism -a spinner-is gear driven from the rubber tired wheels. Spread can be adjusted to any direction, left, right, rear or a full 270°. Adjustable wings protect passing cars. Volume control is obtained through lever operated gates, and bridging of materials is prevented by an agitator at the bottom of the hopper. The hopper holds 2 cu. ft. of material. A special hitch provides quick easy bolting to any dump truck.

Seaman-Andwall Corporation, 305 N. 25th St., Milwaukee, Wis.

For more details circle 116 on Enclosed Return Postal Card.

#### Fast Oil Heating

A new, improved automatic oil heater called the "Hi-Heat", introduced by Bros Incorporated, is stated



Bros Oil Heater

to generate temperatures up to 500° F, 60% faster than equivalent steam broilers. It operates at pressures below 15 psi, eliminating the need for a first-class licensed engineer.

The heater operates automatically, and has an all-electric control system mounted in a centralized, completely weather proofed control box. The electrical system contains performance controls and such safety controls as a flame failure control, a low oil level control, and an extreme temperature control.

The oil heaters burn light or heavy oil, gas, or a combination. Five models are available with outputs of from 1,-050,000 to 3,650,000 BTU's per hr.

Bros Incorporated, 1507 Tenth Ave., SE., Minneapolis 14, Minn.

> For more details circle 117 on Enclosed Return Postal Card.

#### New Contractors' Pump

The first Model of a complete line of self-priming contractors' pumps has been announced by Worthington Corporation.



Worthington Contractors' Pump

The engine driven centrifugal pump, AGC rated, model 4M, features an exclusive recirculation port design which eliminated valves and permits renewal of internal clearance.

Corrosion-resistant aluminum construction permits a total weight of only 45 lb. This light construction is stated to have no effect on length of service since all parts subject to wear are made of cast iron and steel.

Other AGC rated sizes include 7, 10, 15, 20, 30, 40, and 90M. The line also includes a non-rated 3 M.

Worthington Corporation, Plainfield, New Jersey.

> For more details circle 118 on Enclosed Return Postal Card.

#### Screen Testing Equipment

New optional items designed to increase operating convenience during

size-testing in lab and field, will be included in the full line of Gilson sand and aggregate testing equipment to be displayed at the Sand and Gravel Industries Show at Chicago in February.

Listed as options are: a Hydraulic clamping accessory for use with the Testing screens; a door enclosure accessory; a sample splitter; and tray racks for storage of screen trays. Inside coating for sound deadening, and a standard flange furnished on the front edge of screen trays, in certain sizes to prevent the possibility of bouncing-out of sample pieces, are also provided.

Gilson Screen Co., Malinta, Ohio.

For more details circle 119 on Enclosed Return Postal Card.



Champion Concrete Saw

#### Heavy Duty Concrete Saw

A new concrete saw, small enough to be easily maneuverable, yet powerful enough, it is said, for heavy duty work has been introduced by Champion Mfg. Co. The model CS-500, the company's smallest saw is available with self-propulsion. The unit, containing a new Wisconsin TF engine providing 18 hp., is designed for sawing contraction joints, trenching, and patching.

Champion Mfg. Co., 2028 Washington Ave., St. Louis 3, Missouri.

For more details circle 120 on Enclosed Return Postal Card.

#### **New Cutting Edge**

A new type cutting edge for earthmoving and road maintenance equipment has been announced by Shunk Manufacturing Co. Called the 'Gator Twistooth Blade, the new cutting edge



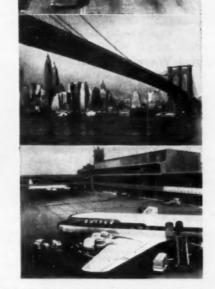
Shunk Twisted-Tooth Blade.



# ...provides an excellent addition to your pavement design file

The Expansion Joint Institute, composed of the major manufacturers of premoulded joint materials who have united to provide research, product development and technical data for the construction industry, has released a new manual, "Design Practices And Uses Of Premoulded Joints In Concrete Pavements." This manual, is the first of its type ever produced and was prepared in answer to many requests for a technical manual concerning the uses of expansion joints.

You'll find the comprehensive technical data and illustrations on the many types of premoulded joints, their applications and installation information included in this manual a very valuable addition to your design file. Send the coupon below for your copy, today!



#### INSTITUTE MEMBERS

The Celotex Corporation 120 South LaSalle Street Chicago 3, Illinois

> W. R. Meadows, Inc. 2 Kimball Street Elgin, Illinois

Presstite-Keystone Engineering Products Co. 3782 Chouteau Avenue St. Louis 10, Missouri

Servicised Products Corp. 6051 West 65th Street Chicago 38, Illinois

#### **EXPANSION JOINT INSTITUTE**

121 HILL AVENUE . AURORA, ILLINOIS

EXPANSION JOINT INSTITUTE

Gentlemen:

Please send me, without obligation, my free copy of "Design Practices and Uses of Premaulded Joints in Concrete Pavements."

NAME

PIRIA ADDRESS

ADDRESS
CITY STATE

. . . for more details circle 257 on enclosed return postal card

features teeth (patents pending) on the cutting surface that vary from each other in the angle they enter the earth or road surface. In this way, and because of the chisel-shaped design of the teeth, it is stated only a minimum of blade area is required for initial contact with unbroken surfaces. This results in less impact on equipment and more effective "digging in" of the blade.

The new type blades are designed especially for heavy-duty service. They are processed from controlled analysis steel meeting stringent specifications for durability. In service, the steel proves highly resistant to abrasives and actually toughens under impact.

Shunk Mfg. Co., Bueyrus, Ohio.

For more details circle 121 on Enclosed Return Postal Card.



Cope Warning Sign

#### Metal Warning Sign

A new light-weight model has been added to the Cope line of metal warning signs. It weighs only 13 lbs. but has an 18 by 18 in. yellow panel with 5 in. high black letters, and stands 30 in. overall height.

The lettered panel is free to swing with the wind. Its angle iron frame folds flat for easy handling. The sign is designed particularly for rugged use where work is spread over a large area, and there is need for many signs that can be quickly moved from one section of the job to another.

T. J. Cope Division, Rome Cable Corporation, Collegeville, Pa.

For more details circle 122 on Enclosed Return Postal Card.



Peterson Push Dozer and Block.



Viking Hi-Lo-Detector

#### Cushion Push Dozer and Block

Marked increase in pay yard production and a substantial reduction in yardage costs when tandem pushing with Caterpillar Dg tractors are cited for both service and proving-ground tests with the Peterson cushion push dozer and cushion push block. Four heavy-duty, shock absorbing pads in each push dozer and each push block cushion tractors, scrapers, and operators from sudden, heavy impacts at contact, thereby reducing pushing time.

Narrow dozer width improves ma-neuverability. It alsi improves balance for rapid movement in the pit and has the bulldozers advantages over a push cup in keeping the pit smooth.

Peterson Tractor & Equipment Co., 955

First Ave., San Leandro, Calif.

For more details circle 123 on Enclosed Return Postal Card.

Wheel guides lower to groove the wheels for operation on forms.

The dye-marking attachment, controlled with the left handle grip, marks high or low places as quickly as the operator comes to them. A new sounding device is also available. It causes high spots to ring a bell, low spots to sound a buzzer.

Visking Mfg. Co., Manhattan Kansas.

For more details circle 124 on Enclosed Return Postal Card.

#### Portable Batch Plant

A new, dual purpose portable batching plant for ready mixed concrete service has been introduced by Cook Bros. Equipment Co. known as the Challenge "Runabout," the unit with its self contained conveyor belt and hopper scale, is stated to batch from 30 to 45 cu. yd. of aggregate per hour. It also serves as a traveling conveyor



Challenge Batching Plant

#### "Hi-Lo Detector"

New, longer models of its "Hi-Lo-Dector" have been announced by Visking Mfg. Co. Hi-Lo is an easy rolling straight-edge that quickly detects and marks areas not within specification limits on cencrete slabs and forms. In addition to their original 10 ft. model Viking is now manufacturing the Hi-Lo in 12 and 14 ft. lengths.

The Hi-Lo is simply rolled along highways or runways. Front wheel steering is controlled by the operator's right handle grip. A floating center wheel detects high or low spots and the variations are magnified 20 times on a scale graduated in 1/4 in. readings.

for stock piling at a rate of 350 ft. per minute. The "Runabout" has a 31/2 cu. yd. hopper capacity, and is equipped with a Fairbanks-Morse scale with separate over and under indicator. On the 31/2 yd. "Runabout" the scale has 5 lb. graduations. The bottom of the hop-per is tilted downward and to the rear, and discharge of the material is controlled by a set of double gates. Loading of the hopper can be accomplished with either a front end loader or a conveyor.

The conveyor boom has a reach of over 25 ft. from the front supporting wheels to the discharge chute. The conveyor has an attached "boot" to make close contact with the charging hopper of the transit mixer. The discharge chute reaches a full 11 ft. 6 in. high, and the mixer can easily be driven under the boom for charging. Cook Bros. Equipment Co., 3334 San Fernando Road, Los Angeles 65, Calif.

For more details circle 125 on Enclosed Return Postal Card.

#### **New Crossing Signal** Warns at a Distance

An electronic lamp designated the "Strobeacon" is designed to give advance warning to vehicle drivers by bringing their attention to conventional flashing lights and the oncoming



Western "Strobeacon"

train at an increased distance from the crossing. The beacon produces a brilliant blue-white light said to be visible up to 5 miles and especially effective

in penetrating fog. The lamp operates on about 1000volt surges from a condenser which is charged by a step-up transformer. As applied to highway-railroad crossing protection, the transformer is fed through a transistor which obtains its energy from the same reserve storage battery which operates the conventional flashing signal. Lamp units are readily adaptable to the standard flashing light or model 10 gate signal above the "Railroad Crossing" sign, either in pairs at 30 in. centers or as a single unit. It is stated that they are installed easily and with a minimum of labor.

Western Railroad Supply Co., Division of Western Industries, Inc., 2428 South Ashland Ave., Chicago 8, Ill.

For more details cricle 126 on Enclosed Return Postal Card.



Davey Hydrovane Rotary.

#### **HUBER-WARCO** motor graders



#### 5D-190 . . . world's most powerful

The Huber-Warco 5D-190 MOTOR GRADER has been designed to make faster passes and smoother cuts for more profitable grader operation. Features include: 195 h.p. diesel engine . . . torque converter . . . tail-shaft governor... power-shift transmission ... and NO CLUTCH. The operator sets the desired speed and the tail-shaft governor maintains that speed regardless of load conditions. The Huber-Warco 5D-190 is "power-packed" to handle a tough grading assignment quickly and efficiently. See your Huber-Warco distributor for complete details.











Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

For more details circle 268 on enclosed return postal card

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A	٤,
Sand ma enecitientions on the Huber-Warra	

- □ 5D-190 Send specifications on: other motor graders

- ☐ Maintainer

3-Wheel Rollers

Title

Company

Address City .

1-RS

UBER

#### A New 600-CFM Compressor

The Davey "Hydrovane Rotary 600" is announced as the only multi-stage rotary compressor with a single free-floating rotor. High operating efficiency and a remarkably small number of working parts are featured. Volumetric efficiencies up to 92% are claimed.

Sight windows are provided for vis-

Sight windows are provided for visual inspection of lube oil conditions and the oil separation process. All parts are readily available for inspection or service through a removable end panel and side panels. No special tools are required for servicing. Units are available in 4-wheel trailer and skid mountings.

Ask for form E-267, by Davey Com-

Ask for form E-267, by Davey Compressor Co., Kent, Ohio.

> For more details circle 127 on Enclosed Return Postal Card.

#### Vertical Boom Ditcher

A new vertical boom, crawler mounted ditches has been added to the line on crawler are rubber tire mounted vertical boom, which are ladder ditches of Barber-Greene Co.

A complete new design, the model 784 embodies the basic chassis of the



Little Giant Model 32 Crane

speed transmission. Field proven over several years on other ditcher models, "Hydra-Crowd" provides the ditcher operator with an infinitely variable range of forward crowding speeds from o to 31 ft. per minute and an instaninate the need for mechanical slip clutches, breaker-bolts or similar relief devices.

Barber-Greene Co., 400 No. Highland Ave., Aurora, Ill.

> For more details circle 128 on Enclosed Return Postal Card.

#### Complete Line of Small Cranes and Excavators

Addition of 7, 10½, and 15-ton capacity units to the Little Giant line are announced by the manufactures as providing complete coverage in the small crane and excavator field. Older units in the series are the 6, 8, and 12-ton machines.

New and distinctive improvements incorporated on all models include relocated controls, special hydraulic track shoe adjustment, and cut teeth on swing pinions and bull gears. All models are equipped with the patented "Ball Bearing Turntable," and all are designed for increased efficiency and reduced operator fatigue.

Little Giant Crane and Shovel, Inc., Des Moines, Iowa.

> For more details circle 129 on Enclosed Return Postal Card.



Barber-Greene's Boom Ditcher.

model 774 wheel-type ditcher which was announced early in 1957. If desired, the 784 vertical boom may be removed and the 5 ft. 6 in. digging wheel of the 774 wheel-type ditcher may be substituted.

The vertical digging boom offers many new design features. It offers a maximum digging depth of 7 ft. and bucket widths of 19, 21 and 24 in. This variation in digging widths is achieved with a single bucket line by varying the position or adding teeth to the individual buskets on the digging line.

Among the many features of the 784, outstanding is the application of "Hydra-Crowd" all hydraulic crowding

taneously available reverse speed of 15 ft. per minute. This infinite range of forward speeds is completely independent of the machine's three bucket line speeds which are controlled, or varied by the operator through another, mechanical, transmission. The infinite range of crowding and bucket line speed combinations available to the operator, to meet all sorts of digging conditions is easily seen.

conditions is easily seen.

A relief valve in the "Hydra-Crowd" mechanism, plus a rheostat controlled electric overload clutch, which can be varied in tension by the operator to suit digging conditions, provide overload release for the machine and elim-

#### Air-Cooled Engines

During the year 1957 Wisconsin Motor Corp. manufacturers of heavyduty air-cooled engines, stepped up the horsepower range of their line from a previous high of 37 to a new top rating of 56 hp, represented by the new model VR4D V-type 4-cylinder engine. Also introduced was the most powerful 4-cycle single cylinder engine ever made by this manufacturer the AGN, rated at 12½ hp at 3200 rpm.

Improvements resulting in increased horsepower have been made in the smaller 4-cycle cylinder engines as well as for the heavy-duty 2-cylinder models. The AGN (smallest in the line) now has a top rating of 6 hp; the BKN, 7 hp; and the AENL, 9.2 hp, operating

in the same speed range as previously (1600 to 3600 rpm.).

The 2-cylinder models TH and THD have replaced the TE, TF and TFD, delivering a top of 16.4 hp for the TH and 18 hp for the THD as compared to previous maximums of 11.2, 14.6 and 15 hp for the original 2-cylinder models.

Another innovation is a line of single cylinder engines with remote electric starting in place of manual rope starting, especially designed for truck and trailer cooling and ventila-

Wisconsin Motor Corp., Milwaukee, Wisconsin.

For more details circle 130 on Enclosed Return Postal Card.

#### Aluminum Rock Body



Aluminum Alloy Rock Body.

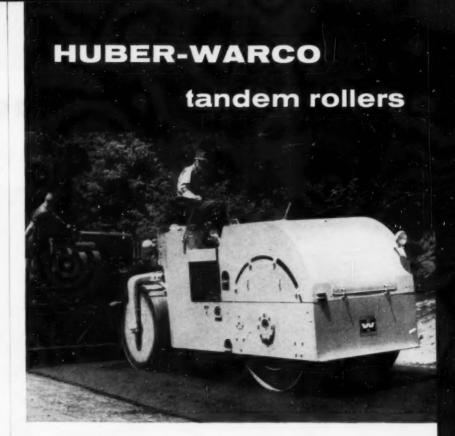
The Heil Co. has completed the first of a series of large rock bodies fabricated from special aluminum alloy plate and extended section. These bodies are unusual in that they are made entirely from aluminum rather than steel plate which is usually used for bodies of this type. Other unusual features are: All-welded construction, size (approximately 36 cu. yd. heaped), all interior corners rounded to prevent adhesion of sticky material, and heated floor construction.

These bodies are being mounted on special off-highway trucks, with Heil heavy duty telescopic hoists designed for off-highway use. The complete units are to be exported to haul bauxite in a Caribbean mining operation.

The Heil Co., Milwaukee 1, Wisc.

For more details circle 131 on Enclosed Return Postal Card.

(Continued on page 110)



#### efficiency at ALL rolling speeds

Torque converter . . . tail-shaft governor . . . 2-speed transmission . . . factory perfect alignment to the guide roll for the life of the roller . . . two independent braking systems . . . fully lubricated anti-friction bearings . . . are all standard features of the Huber-Warco medium and large size TANDEM ROLLERS. These features add up to top tandem performance and efficiency plus prolonged roller life. Huber-Warco tandem roller models include 5-8, 8-10, 8-12 and 10-14 ton. Also available is the 3-5 ton tandem with a towing attachment or with a retractable wheel attachment. See your Huber-Warco distributor for complete details.









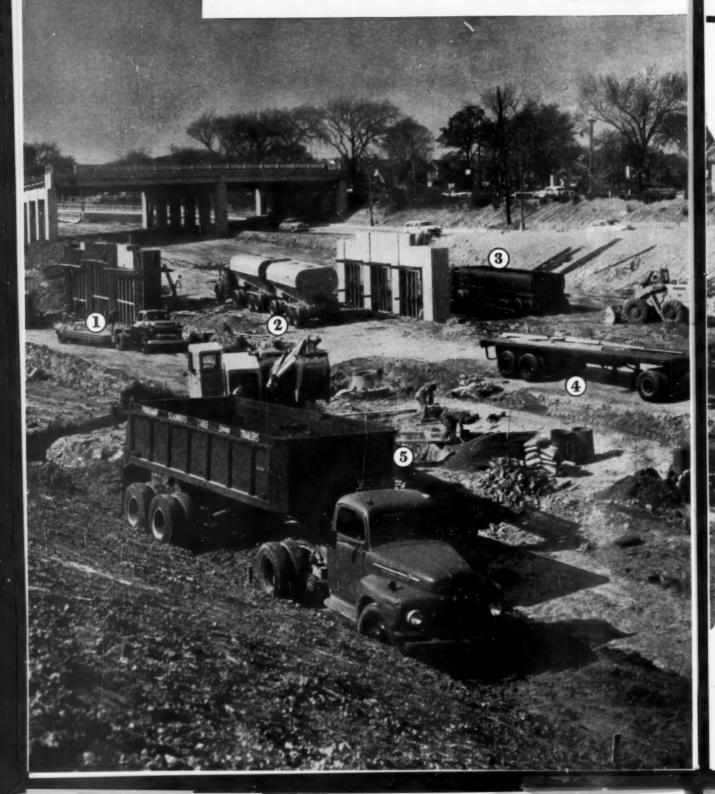


Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A. . . . for more details circle 269 on enclosed return postal card

Send specifications tandem rollers.	PANY, Marion, Ohio, U.S on Huber-Warco
Send specifications on	
☐ Motor Graders	☐ 3-Wheel Rollers



# all the roadbuilding in ONE

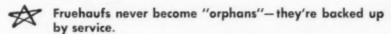


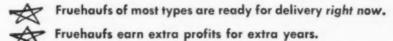
## transportation you need great trailer line!

Movers of roadbuilding materials and machinery have several very important reasons for investing in Fruehauf-built equipment.



Fruehaufs are designed simply, for economy in price and upkeep.





Five different high-capacity, moneymaking Fruehauf Trailers are shown left on the scene of a current roadbuilding project. (1) is a Removable Gooseneck Carryall which permits front end loading and unloading, cuts unloading time of heavy cranes and shovels to less than 15 minutes, and requires no winch in models with capacities up to 50 tons. (2) is an Airslide\* Bulk Cement Tank train, a rapidly-discharging unit noted for the simplicity and economy of its high-speed unloading mechanism. (3) is a Hopper-Type Dump, one of a variety of rugged, specially designed units, with capacities up to 14 cubic yards, to haul such materials as sand, crushed stone, bulk cement, and other aggregates. (4) is a heavy duty Platform Trailer for machinery and heavy building materials, ruggedly designed for "plus" payloads. (5) is a Fruehauf-Schonrock Cable Dump, profitable because of its extremely light weight which permits payload bonuses of up to 4,000 pounds.

\*Trademark-Fuller Co.

The Efficiency of Your Fruehauf Fleet Is Part of

Your Roadbuilding Profit!

World's Largest Builder of Truck-Trailers

#### FRUEHAUF TRAILER COMPANY

Detroit 32, Michigan

PLEASE SEND FREE LITERATURE ON FRUEHAUF CONSTRUCTION TRAILERS!

COMPANY

ADDRESS

\* Fill in or just attach to letterhead and mail.

#### State Legislative Action on Highways

Lawmakers tussle over more matching funds, new legal tools to aid the highway program-with important gains and also much sidestepping of issues on home front.

#### Roads and Streets Staff Review

UNDER THE CAPITOL domes of at least 45 states during 1957, state legislators debated highway proposals and passed bills which will significantly influence progress of the national highway program in

the months ahead.

With passage of the accelerated roadbuilding scheme by Congress in 1956, the federal government shifted responsibility for implementing the program to the 48 state highway departments. In recent months, during the first state legislative sessions held since the new federal program's passage, state highway officials sought to obtain the new administrative, legal and financial powers they will need to keep the \$50-billion program rolling along on schedule.

The fact is that a year ago some state road departments were woefully unprepared in some respects to tackle the mammoth job, of translating billions of dollars of federal aid into thousands of miles

of superhighways.

More money, for example, is a widespread need. Some states need big boosts in revenues just to match the increased federal aid. Many more can match the new federal grants by concentrating all available revenues on their federal-aid systems, but will need more money if they are to continue construction and maintenance on their own systems at the current level.

So the year's legislatures were flooded with a new round of proposals for increased highway user taxes and further borrowing for highway construction. This was despite the widespread adoption of such measures in the last session, and the continuing upswing in yields from present gasoline and motor vehicle levies.

(The total state highway income from user imposts in 1955 came to slightly more than \$4 billion, of which 81 percent went for construction and maintenance of state highways, local roads and streets. When the state legislatures met in 1955, 14 states increased their motor fuel taxes to raise an estimated \$154 million annually. Fifteen states authorized bond issues in amount of \$900 million.)

The debate over who should pay for utility relocation, so hotly contested in Congress last year, shifted to the states. It appears certain now that large sums of the new highway construction money will be siphoned off for this purpose.

Some states belatedly considered legal authority needed by the highway department for speedy acquisition of rights-of-way and control of access on new Interstate highways.

Alfred E. Johnson, executive secretary of the American Association of State Highway Officials, estimates that the greatly increased federal aid (because of the favorable 90-10 matching ratio on the Interstate system) will not require more than 10 to 15 percent more state funds during the next three years, over sums expended during the past three years.

Early in 1957 eight states advised that they would have to raise additional revenues in order to match the federal apportionments, Mr. Johnson said. They were Nebraska, Kentucky, New Hampshire, Oregon, Pennsylvania, Montana, Vermont, Indiana, and North Dakota. Twenty-four states advised that they would request legislation to provide additional money, without which they would have little or no construction funds beyond bare matching requirements. In those states the total volume of roadbuilding would suffer if additional funds were not obtained to carry on construction other than supported by federal assistance.

Did the state legislatures grant

these necessary funds?

A quick survey of the legislatures' 1957 record reveals these important actions.

Seven states enacted gasoline tax increases this year, according to the National Highway Users Conference in Washington, D. C. They were: Indiana, South Dakota, Utah, Nebraska, South Dakota, Vermont and New Hampshire.

But two states have reduced this type of levy-Montana and Pennsylvania. Two states were among those which indicated earlier in the

#### More for Cities and Counties

Formulas for distribution of highway revenues were revised to favor cities and counties by the legislatures in Michigan, Delaware

Michigan cities hereafter will receive 18% of the state's gasoline tax "take"; the counties 35% and the state highway department

Arkansas cities will receive an increase of nearly \$2.4 million a year; the counties \$625,000 more. Eventually the cities will receive 10% of the user revenues; the counties, 15%; and the state will retain 75%. (Heretofore, the state has given 7.7% to the counties and retained 92.3%.)

A new law in Delaware provides for dedication of up to \$1.2 million of the state motor fuel tax receipts for municipal street maintenance.

98

year that they would need increases, in order to even match their federal opportionments. In Pennsylvania, Governor George Leader has declared that repeal of a one cent temporary gasoline tax will mean a cut in state road work and a reduction in state highway aid to the cities. In Montana, failure to provide the additional money needed for matching reportedly will provoke a slash of 15 percent in the state's road-building program.

Mileage tax bills, including weight-distances taxes, were introduced in ten legislatures. North Dakota, Idaho and Wyoming all boosted truck taxes of one kind or another. The Texas legislature has boosted its motor vehicle registration fees 10 percent to raise \$8 million more for right-of-way pur-

Credit financing of new highways was enacted in ten states. They are:

- Tennessee lawmakers authorized \$30 million in highway bonds over the next two years. The move will make possible a \$125-million-a-year program of state expenditures on highways, local roads and city streets. (Of this total, 6½ million will be state-financed; the rest, federal.)
- The Oregon legislature authorized the state highway department to issue \$20.6 million worth of bonds for use in matching federalaid.
- A Kentucky circuit judge declared the validity of a \$100-million bond issue approved by voters in last year's general election. The money will be used to match federal grants, releasing \$37 million for improvements on roads outside the federal-aid systems.
- The Washington legislature authorized \$75 million bond issue to speed construction of the proposed \$194 million Tacoma-Seattle-Everett freeway. Also \$3 million for other state highways.
- Michigan lawmakers approved a bill increasing the highway departments bonding authority to \$500 million rather than pegging it to income. The move will make possible the issuance of \$110 million more in road bonds.
- A proposal for a referendum on a \$24 million highway bond issue has passed the Maine legislature together with a \$60 million general road allocation bill for 1957-59.
- The Delaware legislature voted

#### Utility Grab May Divert Millions

Diversion of highway funds was sought in a number of states during the year, mostly by public utilities who would like Uncle Sam and the states to pick up the tab for relocating their lines along new highway projects. Thirty-nine legislatures were exposed to these campaigns.

In 23 states, proposals which would substantially reduce money available for actual construction were defeated (along by veto in six instances). Sixteen states enacted such legislation.

In urging veto of a reimbursement law in Colorado, state highway engineer Mark U. Watrous estimated the measure would have diverted \$50 million from road construction in the next 13 years.

Governor Roberts of Rhode Island, one of the six governors who vetoed reimbursement bills passed by their legislatures, said such diversion would cost \$20,000 per mile and substantially reduce the number of miles of highway reconstruction envisioned by the state.

When the supreme court in Maine objected to a utilities reimbursement bill, it was amended to allow such payments from the general instead of the highway fund.

\$22 million bonds for state highway construction.

- Maryland's lawmakers OK'd a \$20 million bond issue by the city of Baltimore for Interstate System connections.
- Others include: Minnesota—a \$20 million highway bond issue; New Hampshire—a \$5 million bond issue; Vermont—a \$26 million bond issue; and Texas—a \$5 million bond issue authorized for Dallas County.

Right-of-way acquisition laws and procedures were significantly revised in 13 states to step up this operation. In Indiana for example, highway officials have been authorized to acquire land for future project use, thus permitting purchase before the property becomes more highly developed and more costly.

In Maryland and West Virginia, revolving funds for advance purchases have been approved.

Proposals for highway department reorganization have come up before numerous state legislatures. In North Carolina, the 15-man commission was cut down to a sevenman body and a new position created for a chief administrative official. West Virginia legislators also created a seven-member state road commission, to serve staggered seven-year terms.

Vermont legislators overhauled the state's highway laws, extended the commissioner's term of office from one to two years, and called for biennial highway reports to the governor and legislature.

Utah's three-man full-time commission was abolished and replaced by a 5-man, part-time commission. Nevada's legislature passed a comprehensive law recodifying the body of highway law, and established an advisory board to the Board of Directors of the highway department.

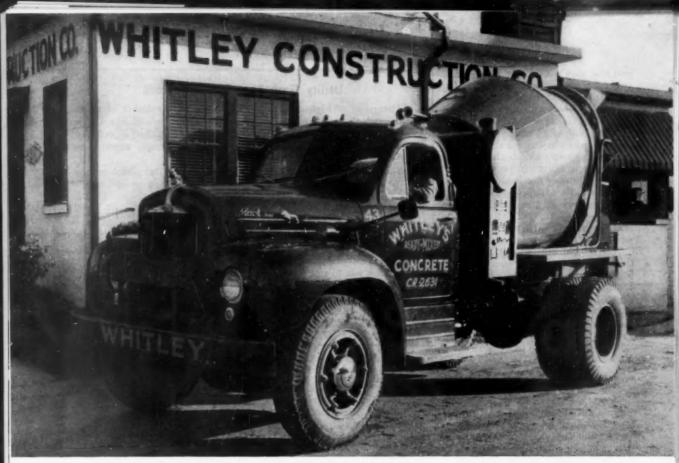
Ohio created a right-of-way department in the highway department with a deputy director in

California passed a law requiring counties and cities to submit annual reports on county roads and city streets, their deficiencies and plans for improvement.

Substantial salary increase were approved for the top road officials in 11 states—Alabama, Arizona, Arkansas, Maine, Michigan, North Dakota, Ohio, Tennessee, Washington, W. Va. and Wis.

• A report by the Kentucky state highway department concluding that the organization will need nearly \$11.9 million to replace old equipment, plus \$6 million for additional equipment to maintain the state's 19,000 miles of highway. The report indicated that 240 graders, 42 power shovels and 38 tractor dozers, more than five years old, need to be replaced.

The construction of plannedaccess highways will be expedited in the future in 13 states as the result of enabling legislation. In Minnesota, New Mexico and North Carolina, comprehensive laws were adopted to make this type of facility allowable. In ten other states such laws were significantly strengthened by amendments. (Every state except Arizona now has a specific provision authorizing design and construction of plannedaccess highways.)

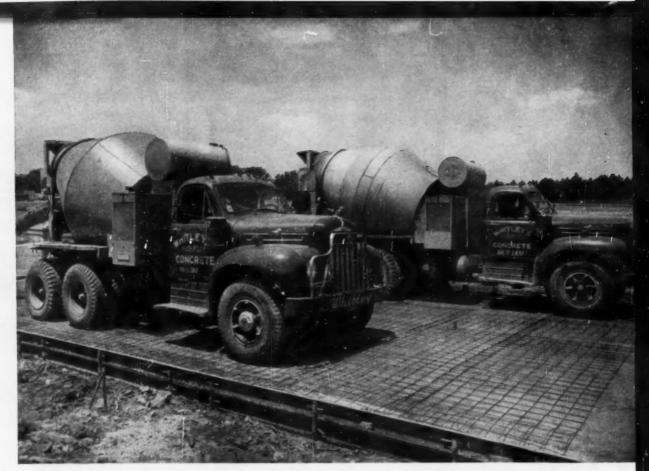


"Our 33 Macks are the main reason why we are able to give our readymix customers the best possible service at the least possible cost," says Mr. Grover Whitley, president of Whitley Construction Co. of Decatur, Georgia. Adds Mr. Whitley, "The extra strength and low maintenance built into

### Macks have significantly



Whitley has eight of these 4-wheel Macks with 4-yard mixers for use on its smaller jobs, such as this residential construction. These Macks perform so economically and stand up to wear so well that Whitley has four more on order.



Two of Whitley's 25 Mack 6-wheelers pouring concrete at roadway construction site. Each of these Macks carries a  $5\frac{1}{2}$ -yard mixer. Whitley has found that Macks carry these back-breaking loads with ease and dependability, at minimum operating cost.

#### reduced operating costs...

"Beating the problem of high operating costs was impossible for us until we bought our eight Mack 4-wheelers with 4-yard mixer bodies," says Mr. Whitley. "In past years, we have used all makes of trucks in the lower price class for use on the smaller jobs, but maintenance and operating costs were excessively high.

"Our business furnishes concrete for residential and commercial construction, which involves our trucks in both heavy city traffic and offhighway travel. Steep grades are frequently encountered, and on foundation pours the terrain is often very rough and the mud deep—conditions which do not make for lowcost operation.

"Yet, with an annual mileage of 30,000 miles (an average of eight trips per day), down time is negligible, maintenance is low, thanks to Macks' superior construction. For profitable operation, these Macks top all our other trucks. In fact, we believe that our reduced costs of operation are due mainly to our use of Macks!"

For the large pours, Whitley Construction Co. operates 25 Mack 6-wheeler mixer chassis, again with top operating economy and little down time. The extra strength built into the chassis and sheet metal of all Macks pays dividends in extra

years of service that no other truck can equal.

If you are looking for equipment that can substantially reduce your operating costs, let your Mack representative show you why Macks are the cheapest in operation and require the lowest possible maintenance costs. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK first name for TRUCKS



Vernon (Stub) Faber doing a rough grading operation on a highway widening project inside the city limits of Milwaukee, Wis. The machine is an Austin-Western Super 99 with 6-wheel drive and 6-wheel steer.

# "I've operated every make of grader and this A-W Super 99 outperforms them all"

says Vernon (Stub) Faber

As a "boomer" grader operator, Vernon (Stub) Faber has spent the past 16 years on construction jobs all over the country. He has run every make of grader under almost every conceivable operating condition. There isn't much he doesn't know about graders.

Here's what Stub Faber has to say about the A-W Super 99. "I've operated every make of grader, and this A-W Super 99 outperforms them all. It's maneuverable, and you can see everything from an Austin-Westernthis is very important for finish grading. The A-W actually speeds up a

grading operation, because it does not have to slow down for the grading of intersections. I like the A-W for slope grading, too. With the hydraulically controlled blade, you don't have to leave your seat to change the blade and the all-wheel steer gives you a good grip on the slope."

#### 30% more power – extra maneuverability

Like the famous A-W 4-wheel machine, the new Super 99 features a unique combination that gives it unbeatable performance. With all-wheel drive, you get sure traction under all conditions, plus 30% more power where you need it — at the blade. All-wheel steer gets the grader where you want it in the shortest time; holds every wheel where the footing is best. Teamed together, all-wheel drive and all-wheel steer let you move more material farther and faster because of directed power on every wheel.

#### Superior blade control

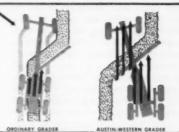
A-W precision sideshift always puts the blade where it's needed. Ends of the blade stay on the ground with no change in the working angle. For top performance on any bank and un-



equaled reach, the high-lift blade can be operated through the full range of 90° left or right. And because the blade is completely reversible, reverse grading on narrow roads or between forms is easy with use of the rear steer. Precision hydraulic controls, instantly responsive to a finger's touch, speed

all blade movements, increasing efficiency and reducing operator fatigue.

Preference for A-W graders is the rule, rather than the exception, among contractors and the experienced operators who know them. You can take an A-W more places, move more dirt, do more jobs, and handle them with less effort than with any competitive machine. As a contractor, you'll want to get the complete A-W story. Write today for free booklet.



An ordinary grader with little material to push moves ahead in a straight line. But when a heavy windrow is tackled, side thrust causes the dead front end to go out of control and slip sideways.

On A-W graders, all-wheel drive and all-wheel steer team up with the blade — the rear drivers push behind the toe of the blade, the front drivers pull ahead of the heel of the blade. As a result, the machine moves straight ahead under perfect control.

#### Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL

BALDWIN · LIMA · HAMILTON

Power graders · Motor sweepers · Road rollers · Hydraulic cranes

... for more details circle 236 on enclosed return postal card



## Highway Estimating Methods

By Geo. E. Deatherage, P. E.

Construction Consultant

Mr. Deatherage, author of this series on highway cost-keeping, has developed an 8-volume "Manual of Advanced Construction Management" for readers who are interested in more details of cost-keeping and the many related subjects in highway contracting business manuagement. Please address your inquiry to George E. Deatherage and Son, P. O. Box 921, Lake Worth, Fla. Many contractors are finding this manual useful in a training course for superintendents and project managers, it is written primarily for these supervisory employees as an aid in better equipping them for taking on large responsibilities and improving their management techniques.

#### The Prevailing Wage Rate

TASK FORCE Report by The American Road Builders Association concludes that "contractors make only 2% profit after taxes. Another 2% of the contract dollar must be set aside by contractors in the higher income bracket for income taxes. This leaves 96% of the contract dollars—(20%) for equipment, (35%) payrolls, (41%) materials and overhead . . . ."

For the moment, the estimator can do with a little reflection as to what composes the payroll charges (35%) and of what will compose them in the future, taking into consideration the so-called "fringe benefits" and the avowed policy of government in inflating the economy 3% per year to guarantee full

employment.

In the old days, before income taxes, the estimator, in considering wage rates for the calculation of unit labor costs, had only to consider the prevailing or union contract wage rates . . . without adding "burden" which may now as much as double the hourly scale. Should the contract be a long-term one, under union agreements of two or three year duration—wherein agreed upon increases are made periodical-

ly—the wage rate on the average is not a constant one, but varies in accordance with the job time schedule.

In short, the estimator of today, if he is to give the job the maximum conservative protection against payroll losses, must be as aware of changes in our economic structure as the so-called "non-political" economist. He must be able to forecast trends as far as possible and provide for them. This is much more of a chore than anticipating what the Secretary of Labor will determine as a "prevailing wage" under the Davis-Bacon Act.

For instance! According to the report "Fringe Benefits 1955," the Economic Research Department of the U.S. Chamber of Commerce concludes that nearly \$13 billion in supplements to wages and salaries were paid to workers in 1955. Total fringe labor costs accounted for 12% of the construction payroll, 16% of private industry payroll and 21% of government payrolls, with an average of 17%.

The classes of benefits covered in this study are as follows:

The tabulated payments cover

payments in time as well as money. For cash supplements alone to wages and salaries to construction workers since 1929, the following table (from the same source)—is presented as a per cent of wages and salaries.

Year	% increase.
1929	2.3
1935	3.4
1940	6.6
1945	5.3
1950	5.0
1953	4.9
1955	5.5

In the year 1954 the Chamber of Commerce Economic Report concludes that . . . in terms of the average wage dollar, a per hour fringe cost in non-manufacturing industry was . . . 41.3 cents. (Business Week, June 12, 1954).

However, as we shall see later, even these terrific increases in the "burden" on the basic craft scale are but part of the story. And this is a story that may be complicated by long-term craft agreements which may be "reopened" by the union for further increases under what they may determine as extraordinary circumstances et al!

These detailed financial worries and unknowns have a background of course. In the past 17 years the dollar has lost 50% of its purchasing value. No financial wizardry is necessary to calculate that, if we follow this same politico-economic path for the next 17 years, the dollar will not be worth a plugged nickel. In France today, with the franc at 436 to the dollar, the francis not worth a plugged one-quartercent.

Although we have some \$22 billions in gold on hand, \$16 billions of this is owned by foreign governments, firms and individuals, which

Classes of	<b>Benefits</b>	Studied		
Fringe Benefit			%	of Payrol
Legally Required				3.
Pensions, insurance agreed upon	n			3.
Rest periods				3.
Vacations, holidays, sick leave, oth	er time not	worked		5.
Bonuses, profit sharing and misc	ellaneous			
Total				17.00

#### SPECIFIC EMPLOYE COST ITEMS FOR THE WARY ESTIMATOR

(A handy check-list of cost elements, any or all of which may be involved in the general category of wage rates)

1.	Increases in basic craft scale. Effective at vary- ing dates in the schedule, depending on labor agreements
2.	Increases in overtime rates on the above assumed basis
3.	Subsistence and increases on same
	Union pension and welfare agreements
	Social security and old age unemployment
	Sick leave pay
	Vacation pay
	Discharge or severance pay
	Holidays, double time
	Unemployment pay
11.	Travel time
12.	Portal-to-portal pay
13,	Lunch time and "coffee breaks"
14.	Extra pay, second and third shift differentials
15.	Pay for sixth and seventh day on Union agreements
16.	
17.	Probable limited work week impositions
18.	Strikes, lockouts and jurisdictional disputes
19.	Retroactive wage increases imposed (Union set- tlements)
20.	
21.	Industry promotional fund allowances (Union agreements)
22	Profit sharing and bonuses
	. Get ready and wash up time
	. Apprentice fund contribution
	. Lost time and extra pay due to special craft rules as:

	(A) Increased rate when working with specialty craft	%
	(B) Time to be reckoned only in half or full days on shut downs	%
	(C) Increases on scale when higher than mini- mum rates paid any craft for overtime	%
	(D) Reporting time (2 hrs. minimum) and full day if 4 hours worked on certain shut downs	%
	(E) Increase to highest rate if worked on two classifications, Highest rate prevails	%
	(F) Overtime rates to prevail if 2 day consecutive rest period not provided	%
	(*) Above instances vary with each craft and will need to be determined in each case.	
26.	Losses or increases due to imposed Federal re- classification of employees over your past prac-	%
97	Increases in mileage or transportation costs	%
	Changes in political control	%
	Increases in the cost of living, if rates geared to this	%
30.	Losses on guaranteed annual wages (if any)	%
31.	Increases if City, State or Federal taxes	.96
32.	Workman Compensation	%

The author recently came across an example of wage scale adjustment, taking many of the above factors into consideration, and also adjusting for a 6 day week, which made it necessary to double the wage scale, used in cost estimating. Missing any of the potent requirements when estimating forms the substance of "hidden losses" that leave contractor but 2% or less in profits.

NB: If you have an estimator who knows all the answers to the above, we can guarantee to double his salary.

can be transported out of the country on demand, leaving us approximately \$6 billions of net gold reserve, against \$5.6 billions held by the West German government, which is increasing its gold reserve by the tune of \$1.5 billions a year (having in 12 years come up from rubble to having the place next to the dollar as a considered sound currency).

If the banks of America were compelled to carry government bonds at the market rather than at par (a practice which if engaged in by private industry would net a jail term) and if the paper money in circulation was backed by the required amount of legal reserve, we would need \$11.5 billions of gold reserve instead of the \$6.2 billions that we actually have.

U.S. News and World Report (Sept. 20, 1957) raises the spectre of the Treasury, later in the year, being unable to send checks to

people due them, forcing them to wait for their money-a serious impairment of the government's credit.

If we seem to be getting away from the theme of our story-"prevailing wages"-let us stop short and consider that, under the above circumstances, coupled with the government's continued action in inflating the economy about 3% per year, the poor estimator is supposed to come up with an average wage figure for construction crafts; not only at the present-but under long term contracts-two or three years from now. And although the craft agreement may have a "re-opening" clause or an escalator stipulation, the estimator is stuck with his own pre-determinations. Truly a job for a Solomon.

One thing must be concluded from all of this: the government has a bear by the tail and it can't let go. The people are now sold on governmental guarantees of "full employment", although this be maintained by the formulae of "defense spending". Any thinking estimator knows what is going to happen: just more of what we have been getting

The previously stated tabular data by the economic research department of the Chamber of Commerce of the U.S. totalling 17% of payroll, generalizes to the extent of charging part of the expense—as vacations, holidays, sick leave and other time not worked, as well as "bonuses, profit-sharing and miscellaneous"; encompassing the classification of the total expense in but five items.

The meticulous estimator is always wary of generalizations, and seeks to boil it down to specific items which can, as far as possible, be weighed as concerns his particular estimate. In doing so he might come up with a list such as covered in the accompanying table.



# Here's why torque converter equipped tractors move more dirt...

For higher work capacity on any given load, and for greater allround daily production, more and more contractors are specifying torque converter drives in their new heavy-duty track-type tractors.

A torque converter drive in a tractor means greater work output, greater profits... and here are five good reasons why:

1. Torque converters provide high engine output torque multiplication . . . up to 6:1 with Twin Disc 3-Stage Torque Converters.

2. Torque converters permit engines to operate in their most efficient speed range at all times . . . to deliver maximum horse-power whenever the load demands it.

3. Power is automatically matched to load demands, with gear-shifting minimized or eliminated . . . where mechanical transmissions must stay in the starting gear ratio, even after starting load resistance has dropped off.

 Heavy load pick-up is smooth and even, without clutch slippage . . . for better over-all flotation.  An infinite variety of ratios is available to work with, permitting smooth, accurate control and delicate handling of loads when required.

Besides boosting production on the job, torque converter equipped machines offer another important advantage, too. The fluid connection between the engine and the machine's drive train cushions out destructive shocks and vibrations . . . meaning less wear and parts replacement . . . less downtime on major equipment investments.

Allis-Chalmers, Caterpillar and International Harvester all offer certain track-type tractor models equipped with torque converter drives, either as standard or as optional equipment. But, regardless of the model or whether the drive is standard or optional, the torque converter components will be furnished by Twin Disc Clutch Company. All three of the "big three" standardize on Twin Disc for torque converter components.

Be sure to specify a torque converter drive in your next track-type tractor... and watch your profits go up from then on in.



TWIN DISC CLUTCH COMPANY, Racine, Wisconsin . HYDRAULIC DIVISION, Reckford, Illinois

BRANCHES OR SALES ENGINEERING OFFICES: CLEVELAND . DALLAS . DETROIT . LOS ANGELES . NEWARK . NEW ORLEANS . . . for more details circle 301 on enclosed return postal card

ROADS AND STREETS, January, 1958

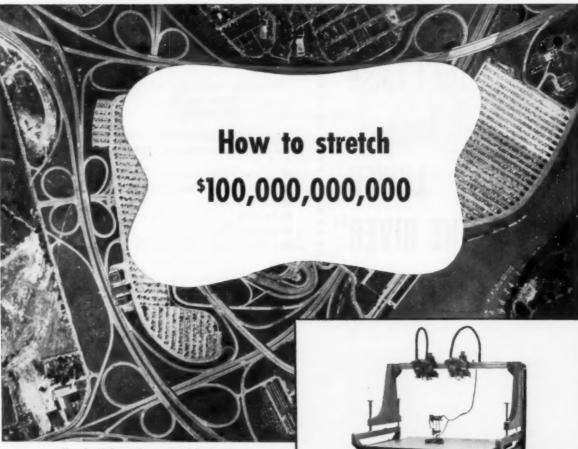


Photo by Air Survey Corporation, Arlington, Va.

That's the estimated cost of highway expansion planned for the next decade. B&L Balplex Plotters will stretch this budget over more and better roads by cutting costs from aerial photographs to final engineering maps.

Balplex saves time! Maps larger areas from fewer photographs taken at greater heights. Standard Multiplex operation, no training problems.

Balplex saves money! Complete capital equipment for precision mapping at scales as large as 1"/50', for only \$4600. (Reduction printer & centering device optional.)

MAIL COUPON TODAY FOR FULL DATA



Bausch & Lomb **BALPLEX** 

BAUSC	H &	LOM	BO	PTICAL	CO.			
86325	ST.	PAUL	ST	ROCHE	STER	2.	N.	Y.

- Send me B&L Balplex Catalog F-303
- Send me data on the complete B&L photogrammetric line

NAME ...

BUSINESS ADDRESS.....

.. ZONE..... STATE

... for more details circle 239 on enclosed return postal card

ROADS AND STREETS, January, 1958

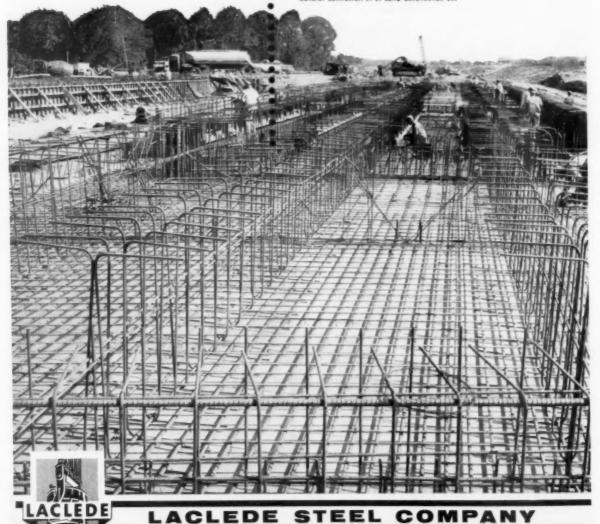
"Don't raise the bridge, boys... LOWER THE RIVER" This favorite punch line of the old music hall comedian actually becomes a reality in the case of this new Highway 40 bridge which is being built right on the ground. Concrete pillars for the bridge are being poured into holes in the ground.

After bridge construction is complete, an underpass will be cut under the bridge. Only then will this unique structure really become a bridge.

# FOR ALL HIGHWAY CONSTRUCTION, LACLEDE MAKES THESE STEELS:

- welded dowel spacers
- multi-rib round reinforcing bars
- center joints
- tie bars
- recess joints
- accessories

Missouri State Highway Commission
General Contractor: J. E. Latta Construction Co.



Producers of Steel for Industry and Construction

. . . for more details circle 280 on enclosed return postal card



• Henry Stafford's plant which produced over 6,500 cu. yd. of road aggregates in a single day.

# "Texas" Sized Aggregate Run

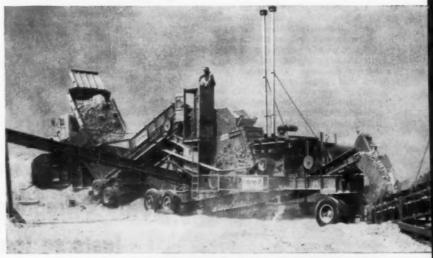
A contractor in Texas this past summer reported tonnages on aggregate production in keeping with Texas tradition for bigness. He is Henry L. Stafford of Lubbock who had a plant set up near highway U. S. 87 during the 1957 summer.

In a 12-hour run this contractor reported 6,564 cu. yd. of finished material, 2 in. maximum. The equipment which made this run was a Cedarapids 3645 portable double impeller impact primary, with ground level feeder and master tandem crushing-screening plant of the same make.

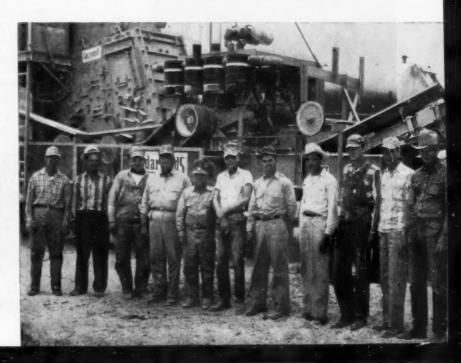
The material was caliche, about 70 percent crushed. The contractor estimated that he removed at the grizzly about 140 cu. yd. per hour, and that about 400 cu. yd. per hour was screened out by the Master Tandem. The Master Tandem accounted for an estimated 10 to 15 percent of the crushing, the rest being credited to the impact breaker unit.

The plant was fed by a Northwest 80D shovel loading to Euclid rear dumps.

Personnel on Stafford's crushing operation: (Left): Johnny Miller, state inspector; Bob Brown, superintendent; J. W. Nichols, feeder operator; George Thomas, crusher foreman; Shorty Seabourn, pit foreman; Junior Rhae, shovel operator; Sonny Rogers, pit truck driver; Herbert Bunjart, loader; W. E. Graham, pit truck driver; J. D. Buckle, pit truck driver; Jeff Ross, pit truck driver.



• Close-up of the Cedarapids double impeller impact breaker.



# New Products

(Continued from page 95)



Wylie's "Patchmobile"

# Versatile Asphalt Plant

The model PM-430 "Patchmobile" is a new portable, hot asphalt plant, designed specifically for small paving jobs, paving repairs, and maintenance. It is compact, with large capacity, low aggregate charging height, and high mixed material discharge. The asphalt storage tank is of 250 gal. capacity.

When operating as a mobile unit, the plant is towed by the dump truck into the charging hopper and is then fed by the reciprocating feeder into the dryer, from which it passes into the batching hopper. When the operator discharges the material in the batching hopper into the pugmill, a pre-set amount of asphalt is automatically sprayed into the mix. Mixed material from the pugmill can be discharged into the shoveling pan, onto the pavement, or into a wheelbarrow, as desired.

When operating as a stationary plant, the low charging height of 64 in. eliminates the need for an elevator. Material can readily be shoveled into the charging hopper from the ground. Wylie Mfg. Co., Inc., Oklahoma City, Okla.

For more details circle 132 on Enclosed Return Postal Card.

# Wheel-Type Trencher

A new economy priced, wheel-type trencher, the crawler mounted 134, has been announced by Koehring Division.

Built to dig trenches up to 5 ft., 9 in. deep, the Parsons 130 has three wheel speeds—134, 277 and 337 ft. per minute. Five digging speeds for each wheel speed, or a total of 15 speeds, permit a digging range of 12 in. to 18 ft. per minute. By changing the sprocket 15 additional digging speeds are possible.

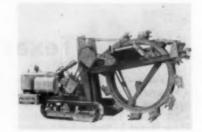
The trench is 12, 16, or 20 in. wide, with optional side cutters adding 2 or 4 in. Trench widths with gumbo

buckets are 16 and 20 in., with increases of 2 in. when optional clearance cutters are used.

Single controls on the 130 handle grading and hoisting of the digging wheel. Tilting of the mast is also accomplished with a single control; the mast cannot be overhoisted.

Standard for the new Parson machine is a Waukesha, 6 cylinder gasoline engine, delivering 52 hp.; optional—a Hercules Diesel T cylinder, 57 hp. engine. The 130 has three forward speeds: 1.09, 1.93 and 2.74 miles per hour. Speed in reverse is 1.20 miles per hour.

Parsons Co., Koehring Division, Newton, Iowa.



Parsons 130 Trencher
For more details circle 133 on
Enclosed Return Postal Card.

(Continued on page 127)

"Our hammer mill proved it—

Only Colmonoy No. 1 hard-facing lasts so long, costs so little!"

Colmonoy No. 1 hard-facing stands up under rough conditions involving impact and abrasion. Its cost is moderate and it welds easily. Great on equipment like dozer blades, shovel teeth, crusher rolls, and conveyor parts.

The new low-hydrogen coating provides excellent arc stability and makes weld cleaning between successive passes unnecessary. You can use it on vertical surfaces, too. Colmonoy No. 1 deposits are hard: 58 to 63 Rockwell C.

Write today for more information about Colmonoy No. 1 and the rest of the Colmonoy line of hard-facing alloys.

HARD-FACING ALLOYS

JOHN & STREET WALL COLMONOY DETROIT 3. MICHIGAI

BIEMINGHAM - BUFFALO - CHICAGO - HOUSTON - LOS ANGELES MORRISVILLE, PA. - MEW YORK - PITTSBURGH - MONTREAL - GREAT BRITAN

> Available as ¼, ¼, and ¼-inch diameter electrodes (DC), in 10 and 50 lb. metal containers.



. . . for more details circle 304 on enclosed return postal card

ROADS AND STREETS, January, 1958

Plowing an
AIRPORT or
PARKING LOT,
CITY STREET
or EXPRESSWAY...



Think of

FRINK

—The Plow Designed for the Power and Performance to Meet YOUR Snow Removal Needs

Whether snow removal problems in your area require a high-speed, heavy-duty V-type plow (above) or a lighter, maneuverable Reversible type, Frink has the plow specifically designed to do the job . . . faster, safer, at lower cost.

Frink, the pioneer in advanced snow-plow design for 35 years, makes four basic types of plow, each with models to fit 1½ to 12 ton trucks . . . and most are interchangeable on same truck attachment. Get full details from your Frink distributor or write Frink for descriptive folders about any of these plows —



Finest speed plow made . . . tapered, curved moldboard throws and spreads snow to minimize deep banks, yet windrows neatly at city speed.

REVERSIBLE PLOW

The all-purpose plaw . . . throws right or left, or bull-dozes straight ahead . . . cab lever sets position automatically, even while plawing.

ROLL OVER Plow with Taper Blade

Made enly by Frink . . . can rotate to left or right position in 15 seconds . . . highspeed for deep snow . . . ideal for airports and dual highways . . ends deadheading . . . easier to park.

> V-TYPE Sno-Plow (shown at top)

Rugged powerhouse for heavy-duty plowing ... selfballasting to keep nose down, prevent side thrust ... bevels side banks ... will not wedge ... safe at high speed ... economical in use.

10

For Snow Plow Know-How It Pays to Think of



Clayton, 1000 Islands, N. Y.
Frink Sno-Plows of Canada, Ltd., Toronto, Ontario
... for more details circle 260 on enclosed return postal card

ROADS AND STREETS, January, 1958

# Base Course Gradation Correlated with Pumping

By W. P. Chamberlin. Purdue University, School of Civil Engineering (Lafayette, Ind.), May 1957. (Thesis) 114 pp. Highway Research Abstracts, October, 1957.

This thesis reports the results of a laboratory study initiated to investigate the performance of a variety of base course samples with different gradations, when these samples are placed over a standard subgrade soil and subjected to repetitions of loads in such a way as to induce the pumping of fine soil to the base course surface and the intrusion of subgrade soil into the interstices between base course particles.

To accomplish the purpose of this investigation, eight gravel base course samples varying from extremes of open-graded to dense-graded and seven course sand base course samples, similarly graded, were placed, each at a relative density of approximately 90 percent, over a silty-clay subgrade soil compacted to 90 percent of maximum modified AASHO dry unit weight, and subjected to 40,000 repetitions of a 25-psi load applied at the base course surface. In each case, the load was applied through a loading head which at all times remained in contact with the base course surface.

Measurements of the total deflection of the subgrade-base course system were taken intermittently during each test. At the end of each test, the weight of soil pumped to the base course surface was measured and a grain size analysis was performed on the base course sample to determine the increase in soil finer than the No. 200 mesh sieve above the subgrade.

A description of the repetitive load equipment is included and the results of density tests performed on each sample are presented.

A good correlation was found to exist between large deflections of a subgrade-base course system and either base course pumping or subgrade intrusion. Test specimens with very open-graded gravel bases were subject to instrusion of subgrade soil and specimens with dense-graded gravel bases with an excess of 3 percent by weight finer than the No. 200-mesh sieve demonstrated pumping of fine soil sizes to the base course surface.

There appeared to exist an optimum gradational range which exhibited neither base course pumping nor significant subgrade intrusion. Test specimens with coarse sand base course samples were found to perform satisfactorily over a wider range of gradation than those with the larger sized gravel bases. Test results were compared with existing filter criteria for thin base courses.

# Contractor Surety Bond Policy Adopted by ASCE

That contractors should be left free to secure surety bonds from such companies as they see fit is the core of a policy statement adopted by the Board of Direction of the American Society of Civil Engineers.

The policy, already endorsed by the Associated General Contractors of America, Inc., and the American Institute of Architects, deems as undesirable the practice of requiring such bonds to be purchased locally or through some specified agent or company.

# AASHO CONVENTION

(Continued from page 72)

whether we can afford to have radio equipment. The truth is that we cannot afford not to have radio equipment.

"The effective area of supervision is increased from line of sight to radio range. It is our belief that two-way mobile-radio returns its investment faster than any other piece of equipment in our inventory.

"The manufacturers of radio equipment are making great strides in producing mechanically improved equipment. Recent improvements include all-transistor sets which are considerably smaller and offer corresponding savings in installation space; these units should also give more noise-free and trouble-free service. The greatly overcrowded frequencies and the resulting chatter of other users has always been an annoying aspect of radio use, but the recent development of selective calling or private line units are helpful. Private line or selective calling effectively provides completely private, interference-free communications by cutting in the speaker only to calls from other units tuned to a special and exclusive impulse.

"Many contractors have refrained from buying radio equipment inasmuch as they felt that major improvements were imminent, and others have refrained due to the red tape and the overcrowded frequencies. As previously stated, the selective calling development will keep down outside noises and will be helpful to the new purchaser, but the present owner appears to be stuck with his old "party-line" equipment.

# Get FCC "On the Ball"

"It is my understanding that a committee from this association forwarded to the Federal Communications System in April 1954 a list of recommendations that would offer partial relief to overcrowded frequencies by splitting the frequency band. March 28, 1955, was set as a final date for comments against or in support of the recommendations.

"It is my further understanding that as of today, November 20, 1957, more than 3½ years later, this badly needed change has not been put into effect. Surely these types of improvements are not that complicated. It can only mean that the FCC has fallen down on the job. I'm thankful that our other communication systems are not under such a do-nothing agency, for if our postal department was similarly controlled our economy would die on the vine awaiting such simple solutions.

"I also understand that the FCC is considering reducing the power and increasing the number of licenses in the contractor allotted frequencies. If this is true it is negative thinking, and I urge this assembly to go on record and protest. I further urge that individually and collectively we contact our congressional representatives and ask their support in the development of a positive program that will properly serve our industry. I am confident that a nation that can develop electronic computers and guided missiles can guide the development of a two-way radio system to serve the largest industry in our nation."

• Administration. Success in fostering a friendly cooperation by city and local governments is necessary in the highway program. So noted John O. Morton, state highway commissioner of New Hampshire, speaking at a committee session on administrative practices. Morton warned that a hostile attitude will create distrust, confusion, higher costs and delays.

The crux of the problem of course is the limited access expressway in and around cities, he said. He counseled listeners not to set up fixed procedures since cities have various types of government and also because personalities vary. First is to appraise the city's form of government.

Whatever the approach, it is best for action to be initiated by city engineering people. "The city's men are usually realistic," noted this speaker. "They know local costs, have ideas of their community's long-range needs. Their ideas can help lead the way to an effective relationship. . . . So, make early contact with the city's executive officers. Present clearly the objectives of the state program, and invite their help and joint consideration," was his advice.

Pursuing this theme further, Morton said it is helpful to meet with chambers of commerce, school boards, service clubs and newspaper editors. New Hampshire's engineers have sometimes prepared local route maps and even small-scale

models to help local people visualize the improvements proposed.

"When the local citizens and leaders are thus informed and their ideas enlisted, they are more ready to fight for the program," he said. On the other hand, this speaker observed that there may always lurk some pitfalls within the municipal government. "You'll find planners, plan boards and other groups which may try to take advantage of the situation," he said.

Morton challenged the planners who spoke at the Hartford conference last summer, saying that the planners are often unrealistic. Sometimes they seem to feel that by tying their plans to the highway program they can show tangible accomplishment.

# Planners Consulted

Planners should always be consulted, however, said Morton, and their ideas considered. But this speaker agrees with a statement attributed to federal highway administrator B. D. Tallamy that the highway program cannot be expected to solve more than a share of the transportation problems of a community. Highway engineers, nevertheless, must consider land use, traffic studies, and other aspects and data of a local nature.

Commissioner Morton related the experience of former public works commissioner Volpe in Massachusetts, in seeking local agreement on by-pass route 28 near Boston. Suburban leaders were called together and offered a choice of two carefully considered routes each representing a sound engineering solution. They were told to take 30 days and report their choice. The route selected was the one subsequently constructed.

Morton ended by noting the decentralization that is taking place with the help of better highways. He told of General Electric Company's program of factory relocation. This company with 1,100 factories is moving a considerable number of plants to outer locations.

In the discussion which followed Morton's talk, Wilbur Jones, of Miami, Fla., recently the American Municipal Association's liaison, said that the problem for the planners and engineers in urban areas is not to please the auto but to the people. He praised Glenn Richards, Detroit's public works commissioner, and Ted Holmes of the Bureau of Public Roads, for defending the engineer's role in helping solve

urban highway problems.

Jones, who is the new co-chairman of the National Committee, said that the state engineers must not go to the cities and say "take it or leave it" in regard to their urban highway location plans and designs. All parties must get together, and if the Hartford Conference did nothing more than spotlight this need, it was worthwhile.

D. C. Greer, state highway engineer of Texas, who presided over this administrative committee session, told of the successful Texas experience in working cooperatively with cities on urban expressways. He pointed out that usually there are three city departments—the city engineer, the planning, and traffic engineer—and the need is to help these three work toward the same highway objective in making speeches and in their various other local public relations.

In Texas the procedure has been for the state to get a *tentative* agreement on a *tentative* route location, chosen for hearing purposes. If a disagreement by some citizen group comes out in the hearing, held in accordance with the federal high-

way law, the problem is reconsidered. If no new facts are brought out, but merely some "against" opinions, the state then declares the tentative route to be the selected route, and goes ahead with plans for construction.

Some of the experiences in locating urban routes in Missouri's highway program were related in this discussion. Rex Whitton, state highway engineer, said that in his state the cities were required to pay 10 percent of the right-of-way in all instances, and hence local officials had a more direct interest in route selection. He told of a St. Louis area project where a go-ahead was decided on a mayor's OK, despite failure of the city councilmen to get together. The state's procedure has been to lay out the route, acquire the right-of-way, and then award the construction contract when the city's right-of-way share (10 percent if Interstate, 50 percent if other federal-aid) is duly paid.

Chairman Greer of Texas added a footnote here, observing that it often helps to get land cheaper when the city pays a share and thus has an interest in the purchase price. • Urban Highway Maintenance. The complete costs of maintaining a modern urban expressway may run astonishingly high, an Illinois engineer revealed at the ASSHO convention. In the case of the Edens Expressway in Chicago, such work is amounting to \$19,247 per mile per year, Diers reported.

Here is Mr. Diers' breakdown for this 8-lane, divided highway.

MAINTENANCE
Cleaning surface \$654.15
Shoulders, ditches, cuts and fills 470.21
Culverts & drainage structures 74.47
Large bridges 5.08

\$1203.91 OPERATION Cutting and clearing vegetation \$2384.21 2490.07 Snow removal Cleaning dirt and debris 4755.23 Landscape maintenance \$1989.54 Guard fence 939.26 Pumping stations 718,97 Traffic costs 4766.42°

Total maintenance and operation \$19,247.61 (\*Note: Traffic costs exclusive of lighting—approximately \$1,300 per mile. Cost per mile of highway lighted including energy—\$4,968.61.)



. . . for more details circle 238 on enclosed return postal card

VIBRATING

SEE THIS LINE AT YOUR NEAREST DEALER:

# 1/EM! the Thriftline



# America's FIRST BUDGET PRICED, All-Purpose Bituminous Distributor

Here's an all-new, all-purpose distributor designed to heat and apply bituminous material at the lowest possible cost. The THRIFTLINE is a practical, easyto-operate piece of machinery built by asphalt men and field-tested by contractors. Check these exclusive THRIFTLINE features:

"Easy-Flo" Piping System Provides more useable distributing pressure. Easy to clean. Only five feet in length.

**High Operator Platform** Puts operator up out of fog where he has 360° visibility. Plenty of room to move around. All controls in easy reach.

Heated, Fog-Free Engine and Pump Housing Engine heats enclosure, keeps system operating at top efficiency. Housing protects all moving parts from fog. Fireproof Burner Boxes Enclosed burner boxes eliminate fire hazard. Wonderful safety feature!

Leakless Valves Give long, maintenance-free life.

Standard equipment on the THRIFTLINE includes a 36 H.P. air-cooled engine, a 375 GPM pump, a 12-foot suck-back spray bar with positive "cut-off", hand patching hose and spray arm, hydraulic spray bar lift—and many other features usually found only on much more costly distributors. A full line of extra equipment is available, if you need it.

The THRIFTLINE comes in three sizes, truck mounted: 1000, 1250 and 1500 gallon tank capacities. See your "South Bend" dealer or write for information.

FREE CATALOG

Send for colorful, illustrated Catalog T-100.

MUNICIPAL SUPPLY COMPANY
2519 S. Main Street, South Bend 23, Indiana
EXPORT OFFICE: 44 Whitehall St., New York, New York

Other "South Bend" Products: Street Flushers, Maintenance Distributors, Street Sprinklers, Special Tank Equipment



ROADS AND STREETS, January, 1958

# Bituminous RDADS AND STREETS

# DRYING MUST BE ENGINEERED

In shop talk among contractors and engineers concerning asphalt plants a considerable amount of discussion is devoted to drying problems. While not necessarily numerous the problems seem to be bothersome; in fact there seems to be an impression that the art of drying is not well understood. We personally doubt this, believing that on the staffs of the drier manufacturers and elsewhere there is a considerable number of engineers who are thoroughly capable in this field even though their views in some cases, as is common among experts, may differ. We suspect instead a lack of knowledge of the drying conditions and the action required in particular situations: that is, that the trouble is not so much with the equipment but with the requirements placed on the drier, or on its operation in attempting to meet them.

The solution of drying problems requires a thorough understanding of the action of water in asphaltic mixes, and the degree of its removal necessary. With this understanding, solution of drier problems may be less difficult. We will attempt to briefly cover some of

these points.

In the usual aggregate—that is, material showing little or no tendency to strip or to hold internal moisture—the presence of water is harmful in only two ways.

The first is due to volume increase in the total liquid present, with possible increased lubrication, a plastic mix, or other difficulties. To avoid these troubles the moisture content merely needs to be reduced below a nominal level—something in the order of one-half per cent.

The other effect is the resistance to coating resulting from moisture

# Views And Comments

. . By H. G. Nevitt

on the aggregate surface, even though the aggregate has little tendency to strip and will coat in due course. To avoid this a surface dry product is all that is required, and the moisture limit corresponding to this characteristic still may be quite high, depending upon how much can be left in the crevices of the aggregate without later appreciable surface effects. In either of these situations the demands on the drier are extremely moderate. The drying requirements set by the authorities controlling the project should be correspondingly moderate, and almost certainly the drier provided with the plant by the manufacturer will do a satisfactory job unless extremely wet aggregate is being handled.

The situation becomes somewhat more difficult if a stripping aggregate is being used. In this case not merely must the moisture be removed from the surface, but there must be no tendency for any to come from the aggregate pores and cover the surface in the interval between discharging from the drier and the mixing operation. Even though the aggregate carries little internal moisture, somewhat more intensive drying is required in such cases: the capacity of the drier as well as the residence time of the aggregate in it must be sufficient to provide the desired condition. This situation does not usually cause much trouble but does increase the drier capacity demand—this additional drying, while not corresponding to much further moisture removal, does require considerably more handling by the drier, with consequent limiting effects on any overload capacity possible from the equipment.

The real drying problem occurs when the aggregate contains internal moisture in considerable amount. In such case the rate of heat progression through the larger aggregate particles will be slow, since moisture evaporation must occur before the internal temperature can rise beyond the limiting point. If this time is not given in the drier as operated, trouble will result regardless of any increased temperature in the aggregate as it discharges from the drier and the apparent condition of surface dryness at that time. As the heat from the external layers of the aggregate progresses into the stone additional moisture will be driven out, with resultant condensation in the bins, foaming in the mixer or in the trucks, and similar effects. These difficulties are accentuated when the aggregate tends to strip or (as is quite possible in glacial and similar gravels) some of the surfaces have this characteristic. In such case the moisture being emitted will be adsorbed on the stripping surfaces and delay or prevent the asphalt from coating them.

It is obvious in this last situation, the one most likely to cause severe drier troubles, that the amount of moisture left in the stone is a poor criterion of the drying condition required in the aggregate. There is no need to remove the deep internal moisture providing the aggregate can be raised to the temperature needed for suitable mix-

(Continued on page 124)

# MINNESOTA BITUMINOUS PRACTICE - I

# Road-Mix Resurfacing for Heavier Traffic

By H. K. Glidden

Contributing Editor, Roads and Streets

Skillful dozer-blending, in approved glacial gravel pits, on this typical project, was "half the battle" on this typical project in producing specification aggregates at low cost and in sufficient daily volume.

The 1957 construction season found the Minnesota highway department concentrating largely on the major maintenance or reconstruction of existing highways. Minnesota No. 23 from Duluth southwesterly across the state to U.S. 16 and points west proved typical in the problems involved in bringing an old highway up to a 9-ton axle load rating. The use of bituminous road mix for base and temporary surfacing on this highway provided state development under the highway department's policy of stretching funds-available to the greatest feasible extent.

The 15.3 mile project here described was awarded to the Minnesota Valley Improvement Co., of Granite Falls, Minn., in the amount of \$300,000. The major items of this 1957 job were: aggregate (1 in. minus bituminous base course), 10,000 tons; aggregate (3/4 in. minus bituminous surface course), 11,500 tons; aggregate (1 in. minus gravel base), 94,000 tons; aggregate (2 in. minus subbase), 51,000 tons; MC-3 asphalt, 273,000 gal.; and unclassified excavation, 111,000 cu. yd.

The contractor had a clean and efficient operation, his crew working closely with the highway department to obtain a satisfactory solution to problems which occurred on the project.

This section of highway literally grew up with the Minnesota highway system. Its original construction and alignment followed early-day practices with little regard for the degree of curve or the sight distance involved. As traffic density and load limit increased, the road was kept serviceable with the universal short-fund practices; spot maintenance and secondary road construction. Recently it became increasingly evident that the highway could not withstand its growing traffic and required a major improvement. The problem was how to salvage as much of the existing highway as possible and at the same time end up with a pavement which would handle high-density traffic.

Minnesota differs from many states in that it has many areas where peat bogs are frequent and of varying depth. The state also has its share of unstable soils.

The roadbed in past years was raised to whatever extent was feasible by taking the material from the ditch cuts. Centerline cuts were avoided and were usually shallow. This resulted in a very spotty condition in the roadbed; pockets of peat and frost-susceptible soils occurred with frequent, but unpredictable, regularity. As far as the bearing power of the new pavement was concerned, the highway department had its choice of extensive regrading or, on the other hand, of strengthening the old pavement to such an extent that it could be expected to perform satisfactorily as subbase. "Beefing up" was the procedure chosen.

(Continued on page 118)



 Spreading 11-ton load toward windrow rather than customary backing to spread away. International R-170 truck. One of numerous details of procedure that pay off in better job control.



# ... <u>reserve</u> mixing capacity

that KEEPS your trucks rolling! Large screening capacity, 85 ton hot aggregate storage, plus a specification 4 ton mixer (not simply an overrated 3 ton) keep your trucks moving! This extra capacity of the new Simplicity S-200 is there at start up time or whenever trucks stack up.

The new S-200 is fully automatic. Push one button and all weighing, mixing and dumping is done automatically. One movement replaces a minimum of eleven movements by mixer man. Easier — Faster — More Accurate. Like all Simplicity plants the Model S-200 has the dependable, durable, economical, Simplicity double shell dryer.

On request, we will be glad to give you the facts.

# THE SIMPLICITY SYSTEM CO. RIVERSIDE DRIVE . PHONE MADISON 2-2144

OM BUILDER TO BUYER
TWEEN MEN WHO KNOW CHATTANOOGA 6, TENNESSEE

... for more details circle 294 on enclosed return postal card

ROADS AND STREETS, January, 1958



 International TD-24 shoves huge load in "nice" pit, so-called because its relatively uniform material required only 15% crushing.

While the decision to strengthen the pavement was the primary one, subcutting was employed where the subgrade was clearly so poor as to make salvaging too expensive, or impractical. The subcutting on this project called for the removal of unstable and frost-susceptible material to depths varying from 2 to 4 ft. below pavement grade and backfilling with pit-run gravel. Gravel totaling 30,000 cu. yd. was used in backfilling intermittent subcuts in the 15.3 miles of distance.

Most of the excavation performed was to correct the profile grade, so as to secure adequate sight distance over hillcrests. Curves were also brought to present-day standards.

The pavement design adopted included a crushed gravel base (1-in. minus) varying in thickness from 4 to 10 in., and a 1-in. layer of bituminous road mix base. The bituminous base was then shot with a light application of MC-1 and a temporary 1-in. road-mix wearing surface placed. This construction will be subjected to traffic for a long enough period of time to determine whether or not all of the weak spots have been corrected. Then it will be surfaced with 3 in.

of hot mix asphaltic concrete under a subsequent contract.

• Pitt Designation. Minnesota employs designation of aggregate pits as an economy measure and to retain control of its dwindling aggregate resources. Designated pits, available free of charge to the contractor, are thoroughly described in the proposal. The pits are sampled carefully and the results of all tests published. Of particular interest to bidders is the estimate of the percentage of the material which will require crushing to enable it to come within the specified gradation. This percentage may range from zero to as much as 50 percent-with corresponding increase in production costs.

The contract job here described involved three different pits designated to assure adequate aggregate. The one seen in the accompanying photographs, characterized as "nice," required about 15 percent crushing. The third pit was "rough," necessitating an estimated 45 percent crushing. Production in the "nice" pit averaged 300 tons of 3/4-in. minus material per hour, while in the "rough" pit the same equipment did well to deliver half

this tonnage.

· Novel Truck Weighing. The contractor employed a time-saving method of simultaneously weighing and weight-controlling the aggregate per truck. The state-employed weighman was told the empty weight and number of each truck in the string. The International R-170's used, for example, were loaded to 11 tons; hired trucks were rated according to capacity. One requirement of the system was that the trucks had to be loaded on the scale platform. The only modification of the Thurman scale was the fastening of an electric contact on the end of the beam, so that it would close an electrical circuit when weight of the loaded truck reached any predetermined setting of the scales. The closing of the circuit activated a loud buzzer close to the crusher operator. When the buzzer sounded, he shut off the delivery conveyor, and the truck driver quickly pulled off the scales. The next truck in line followed closely so as not to keep the conveyor idle long enough to clog or overload it.

The loading steps were simple, but required the coordination of wide-awake weighman, crusher operator and truck drivers. As a truck pulled up, the weighman noted its number and the corresponding loaded gross vehicle weight. When the truck pulled onto the scale the weighman set the scales to the GVW reading and the crusher operator started the con-

(Continued on page 120)

Editor's Note: Mr. Glidden, a graduate civil engineer, prepared the series of Minnesota reports of which this article is a part, during the 1957 summer while on vacation from the Department of Civil Engineering Staff, University of Utah. He was a former regional construction engineer and district engineer for the Civil Aeronautics Administration, and is the co-author of a textbook on airport design and construction.

# Two New High-Capacity Asphalt Plants Announced by Barber-Greene

These two new continuous asphalt plants give greater versatility than ever before available. The same mixer, without alteration, may be used with any combination of plant components to produce all types of mixes—from the simplest cold mixes to the highest types which must meet the most rigid specifications. Model 847 is for high capacity. Model 848-A is for extra high capacity.

It is only necessary to transport and operate the components required for the job:

For cold mixes: Mixer + calibrated feeder

For intermediate hot mixes: Mixer + calibrated

feeder + dryer

For high-type mixes: Mixer + gradation unit + dryer



Plant with four-bin gradation unit for production of highest type mixes. This multiple-aggregate plant is available in both sizes.



Cold-mix plant, available in both sizes, consists of mixer and calibrated feeder. Dryer and gradation unit may be added later.

# Both models offer these advantages:

- Unequaled versatility as described above.
- New hydraulic clamshell discharge gate saves truck time, prevents segregation.
- Transfer pump assures constant head of asphalt for metering pump, eliminates need for asphalt storage tank on mixer.
- Interlocked aggregate and asphalt feeds assure constant, correct proportioning.
- Truck pit no longer required.
- Highly portable plant components allow fast travel between jobs, pay off in more days of operation per season.
- Erection is merely a matter of spotting the units at the plant site and dropping the jacklegs.
- New, easier calibration of single-aggregate and cold-mix plants.

57-12-A

Write for information on these two new flexible high-capacity asphalt plants.



.



 Bros steam generator at rear broke cars of MC-3. Cleaver-Brooks bituminous booster loaded 1,250-gal. Rosco distributor.

veyor as soon as the aggregate would fall into the bed. Poised for instantaneous action, two truck drivers, the crusher operator and the weighman awaited the buzzer. One check period clocked 11-ton loads of 3/4 minus material at an average of one every 21/4 minutes.

• Crushing and Screening. Several factors governed the rate of production. The greatest single adverse factor was an increase in the percentage of crushing required. Gradation of the pit material encountered was a major factor and was closely related to the percent of crushing. Wet aggregate seemed to pass more slowly through the trap than did dry aggregate. The sum total of small delays accounted for day-to-day differences under otherwise stable conditions.

Two International TS-24 dozers were used in pit No. 1 to push gravel to the crusher at a rate sufficient for about 3,000 tons of production per 10-hour day. The two dozers were necessary in order to blend the material as well as for maintaining high production. One part of the pit ran strongly to coarse gravel, while another was mostly sand and small gravel. By the proper manipulation of the two dozers it was possible to feed the crusher so that the crushed aggregate came close to the middle of the specified gradation. A stipulation in working this "nice" pit was that the top soil was to be stockpiled and put back in place when the job was finished.

The crushing plant used was a Cedarapids Commander, combination jaw and roll crusher. It was powered with a GM Detroit Diesel Model No. 62406 L D coupled directly to the crusher with a GM power-take-off Model GRA-½-182. Four International R-170 trucks, mounting Smith-Dunn 6 to 8 yd. bodies, made up the contractor's own fleet, which he supplemented by a peak of 16 hired trucks.

• Windrow Spreading. Placing of subbase, granular base course and the grading were completed early in the season. Grading was subcontracted to Berghuis Construction Co., of Prinsberg, Minn.

The mixed-in-place specifications allowed 2 percent maximum of surface moisture in the bituminous aggregate at time of processing. This made it necessary to dry the material in place prior to mixing.

It was the contractor's practice

to spread the material, full truckbed width, to provide the thinnest and widest windrow possible. In keeping with the Minnesota practice, the state furnished a load tallier and the contractor furnished a man to measure out the length of spread for each load. In his instance, a worker used a long section of light chain with about a 1-lb. weight on the end to hold the mark while he measured for the spread. Since the trucks were loaded uniformly, the load could be spread starting at the point where a red rag was tied onto the chain. An 11ton load was spread 82.5 lin. ft.

This system worked well, in that the driver started to spread a load where the load should end, rather than working the other way and trying to stop unloading at the proper point. The truck driver raised the hoist about 10 ft. before



Cat 12 motor grader at left windrows bituminous base for reprocessing in spots where damp base prevented bonding. Rosco distributor applied additional MC-3 to be mixed by Seaman Pulvi-mixer.



 Contractor made up various sizes and shapes of hand-operated fuel tanks which were strategically spotted over the project. This one handled diesel fuel and engine oil.





Barber-Greene Travel Plant took only 41/2 hours to process 900 tons of aggregate in a one-mile windrow.

he came to the point where he would start to deliver his load. Just as he passed the marker the man on the base called to the driver to open the end gate.

In all instances, a motor grader immediately spread the windrow full pavement width. Where fast aeration was required, the contractor employed a light tractor and two sections of farm type tooth harrow to continually stir the top of the material, allowing it to dry more rapidly. When the material was sufficiently dry it was bladed into a narrow windrow about 5 ft. inward from one pavement edge.

Prior to mixing the asphalt and aggregate the base was carefully swept with a Henke VB-7 power broom to get all fine materials into the windrow which was missed by the grader.

 Road Mixing of MC-3 and aggregate was done with a Barber-Greene travel plant, which averaged about 1,000 ft. per hour. Mixed material was then bladed sideways to accomplish two things: (1) to allow the base to dry below the original windrow, and (2) to provide aeration and additional mixing. A Seaman Pulvi-mixer next made a pass down the windrow, performing additional mixing and aerating. Experience has shown in Minnesota that it is almost impossible to lay out the mix properly if it has been processed at too high moisture content.

 Truck-mounted GMC Detroit Diesel with direct drive powered Cedarapids Commander. Unique signal system allowed operator on crusher to load all trucks uniformly. Both the inspector and the contractor here had learned to distinguish quickly the presence of excess moisture by the look and feel. The Pulvi-mixer made continual passes over each area until the mix was thoroughly aerated.

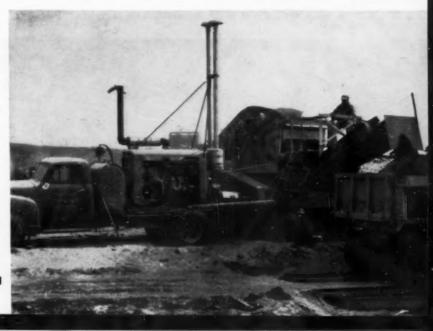
The procedure in laying out the mix was first to spread part of the windrow to one shoulder and carefully form this shoulder to string line and grade. Then the same procedure was worked for the opposite shoulder. By this means two grade lines were set and the balance of the mixture was bladed into place uniformly between the two shoulder lifts. While the bituminous mixture was being evenly spread it was kneaded and rolled with pneumatic rollers. A Galion Rol-O-Matic performed the finishing. The contractor used two 1,250 gal. Rosco distributors mounted on Dodge trucks.

For unloading the MC-3 from

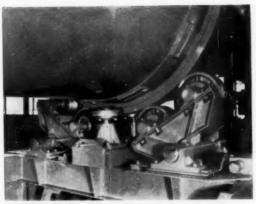
tank cars, a Bros steam generator Model 1-A on an International truck loaded the distributors.

The 1-in. base course layer was followed by the tack coat and a 1-in. mixed-in-place surface layer. The base course was opened to traffic immediately. Due to the unusually rainy 1957 season, it occasionally happened that the base course would be too wet to allow a good bond with the gravel subbase. Traffic soon disclosed any such weak spots. These were bladed out, reprocessed, and relaid prior to the placing of the surface course.

Owen Olson was superintendent for Minnesota Valley Improvement Co. Harold Odden was oil foreman with Abe Lindeman and Carl Oligger handling the pit and crusher. Marcus Woell was project engineer for the Minnesota department of highways under Mr. A. W. Moulster, district engineer, at Brainerd.



# Mixer and Dryer **Innovations**



Construction detail of the trunnion rollers mounted on swivel plates for even alignment and full face contact with the tire.

# features of new plant in Cleveland area

N ASPHALT PLANT recently put A into operation at Bedford Heights, Ohio, contains a number of design innovations. Constructed by the Bollard Asphalt Plant Division of Colonial Iron Works Company, it was built for a company formed by the owners of M. A. Vitale, Inc., and the Pioneer Paving and Construction Co. The plant will produce asphalt for both companies as well as other independent contractors in the greater Cleveland

The plant is one of three built involving features (patents applied for) developed by W. A. Bollard, who built the world's largest asphalt plant now in operation for the city of New York.

The Bollard design permits the installation of either a one, two or three ton capacity mixer to be in-

stalled in the same tower with but a few minor changes required in the mixer platform. The unit presently has a 2-ton capacity mixer and is rated at 120 tons per hour as a semi-

automatic batch plant.

The new features of the design are located in the mixer and the dryer. Longer life, less maintenance and greater efficiency are claimed by supporting the dryer cylinder on four pairs of twin trunnion rollers instead of the usual four single rollers. Each pair is mounted in a cradle on a pivot shaft for even dis-tribution of bearing load, and the carriage assemblies are mounted on swivel plates for perfect alignment and full face contact of the trunnion rollers with the tires.

A roller chain drive, mounted midway through the dryer length, develops equal torque at both ends of the drum and eliminates the chatter that normally accompanies a drive mounted at an end. The 10 sprocket teeth for the drive are welded to the inside wall of the shell and protrude through the outer wall. A broken sprocket tooth can be replaced for \$10 and welded into place, it is claimed, as against \$750 to \$1000 typical cost to replace an entire ring gear.

Elimination of the ring gear also reduces dryer weight by about 1,500 lb., increasing the turning efficiency and reducing the load on the driver

motor.

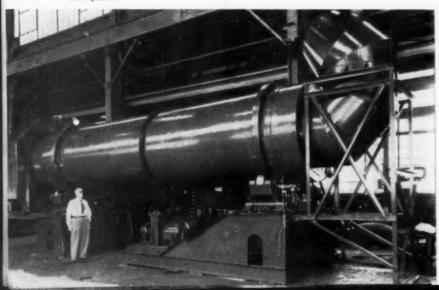
A well maintained curtain of material falls across the inside of the dryer at all times because of the arrangement of the over-sized spiral lifters which provide a multiple exposure of the aggregate to the heat and air currents.

The mixer is of twin shaft design with the shanks and tips arranged for a spiral "run-around" produc-ing a closely knit mix. The shanks are steel castings and the tips are made of a high chromium alloy. The tips can be attached in the flat or pointed position with 16 possible adjustments. The 16 liners are overlapped, reducing the need for a large number of bolts, and the four liners at the mixer gate extend down to fully protect the shell wall at this point.

Any repairs to the mixer or adjustment of tips can be accomplished easily without the need to remove any of the structure over the mixer. An important feature is the ample platform room on all four sides of the mixer, and the

(Continued on page 125)

• Dryer which was installed at the Bedford Heights Material Co. hot mix plant.



# ADEQUATE SHOULDERS: Key to greater highway safety and service



BITUMULS® DM-1 is applied by distributor.

# BITUMULS Base Stabilization of Shoulders on New Jersey Route S-41



FIRST PULVI - MIXER follows closely behind distributor.

• Typical of the speed and ease with which new safety and service can be built into existing highways is the work done last August along an eight mile stretch of Highway Route S-41, near Ellisburg, N. J.

Along each side of the 20 foot, rigid type pavement, a 10 foot width of sand-gravel base, 4 inches deep, had previously been placed and compacted to provide drainage. But it lacked stability, both under moving traffic and parked vehicles.

# CONSTRUCTION METHOD

This in-place material was scarified, then bladed level. Over the loose scarified material, Bitumuls DM-1 was applied in two applications. Following each application, the material was mixed with two Pulvi-Mixers operating in tandem.

After mixing, the material was cut back to an even sub-grade line, then re-spread uniformly over the full 10 foot width. During blading and spreading, the mix had aerated sufficiently to allow immediate compaction. Pneumatic-tire rollers were used for initial compaction, with a final pass by tandem steel-wheel rollers.

This stabilized base was allowed to cure for one week, then surfacing proceeded as follows:

MC-1 cutback prime applied at the rate of 0.25 gal. per sq. yd.  $\frac{3}{8}$ " traprock applied over prime at the rate of 25 lbs. per sq. yd. Bitumuls RS-2 applied at the rate of 0.25 gal. per sq. yd.  $\frac{3}{8}$ " traprock again applied at the rate of 25 lbs. per sq. yd.

The shoulders were then thoroughly rolled.

In addition to holding costs to a minimum by making use of in-place material, Bitumuls Base Stabilization provides a fast, simple method of extending the service and safety of existing highways. Full details on this method of shoulder construction are available from our office nearest you.



PNEUMATIC ROLLERS in tandem on ini-

MC-1 CUTBACK PRIME applied ahead of final seal.



# American Bitumuls & Asphalt Company

with a 320 Market St., San Francisco 20, Calif. Perth Amboy, N. J.
-wheel Baltimore 37 Md. St. Louis 17, Mo. Cincinnati 38 Ohio
Mobile, Ala. San Juan 23, P.R. Tucson, Artz.
Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore.
. . . for more details circle 233 on enclosed return postal card

ROADS AND STREETS, January, 1958

# VIEWS AND COMMENTS

(Continued from page 115)

ing conditions—that is, dry surfaces and no evolution of moisture. This is often quite possible, since this moisture evolution frequently results from the unusually high drier discharge temperatures which result from the effort to completely dry the aggregate.

The truth of the matter is that the drier conditions in normal use today—that is, high surface temperatures, high heat transfer, and limited residence time—do not suit the drying of such aggregate. Instead of these usual conditions, which are accentuated in the modern effort to operate the drier at higher and higher capacity, what is needed is a limited aggregate temperature, just sufficient to give good mixing, and a sufficiently lengthy drying time to eliminate all moisture which will come out under these conditions. The usual procedure, however, is insistence

by the authorities on drying to very low moisture levels. This does of course insure no evolution of moisture in or following the mixing, but is extremely uneconomical since the amount of drier capacity as well as the drying expense required for such drying is disproportionately high.

We believe it evident from even this limited discussion that the proper drying of aggregates is an engineering matter requiring planning to suit the individual conditions. Furthermore, the requirements established for the dried aggregate should be similarly suited to these conditions. Drying to arbitrary moisture levels, particularly when the requirements are severe, is clearly not the best solution, although it will get the results if there is no objection to the cost involved. It is further evident that the purchase of driers by the contractor and their assignment to specific projects should be con-trolled by the conditions rather than through the establishment of an arbitrary drier size to go with a stated plant capacity.

No contractor expects a fleet of trucks of definite size to always suit his operations with a particular plant, knowing that the haul and other variables will determine the required truck capacity. In a similar way the drier capacity for any condition should be determined by the needs, and these needs should be analyzed carefully and preferably previous to starting the job. Likewise the project engineer should determine the drying characteristics really essential for the aggregate, and should demand an operation that gives them rather than call for an arbitrary condition which may be unrealistic for the true needs.

Today most drier problems are being solved by simply reducing the moisture level sufficiently to get the results regardless of cost. Knowing that the public in the end pays the bill, we believe this matter should receive more attention from both contractors and engineers, so that drier selection and operation for any condition will be placed on a rational basis.

# N. J. Pike Revenues Up

Revenues for the N. J. turnpike increased 21.5 percent during the 12 month period ending October 31, compared with the year previous. According to the authority, revenues for the 12 months were \$32,350,114.00.



Two of 22 Etnyre units operated by Central Asphalt Inc., New Hartford, New York. A 1250 FX 400 Style D "Black-Topper" is shown loading 350-degree bituminous material from an Etnyre Hauling Tank equipped with low-pressure burners.

Recently adding two new Etnyre "Black-Topper" Distributors and a new Etnyre Hauling Tank to bring their fleet up to 16 distributors and 6 transports, Central Asphalt Inc. says, "The fine performance and dependability of the units we are operating keep us sold on Etnyre equipment."

Central Asphalt has used Etnyre "Black-Topper" Distributors and Load-Topper Hauling Tanks extensively in the application of all types of bituminous materials throughout their 11 years of successful operation in central, southern, and southwestern New York State.

Etnyre tanks are originally and exclusively designed and made for handling "heavy" materials. Over and over again, the superiority of these tanks in the special service for which they are designed has been proved by substantial users like Central Asphalt. Learn the details before you buy another unit! Call your Etnyre dealer or write E. D. Etnyre & Co., Oregon, Illinois, U.S.A.

SEE YOUR ETNYRE DEALER

# ETNYRE "Black-Topper"





 Two tons of hot mix pour through the mixer gate into the truck with the plant in full swing.

# MIXER DRYER INNOVATIONS

(Continued from page 122) ease of operation which can be manual, semi-automatic or com-

manual, semi-automatic or completely automatic. Mixes can be made to any specifications without any changes being made in the unit. The Bollard plant was com-

The Bollard plant was comprehensively engineered for all stages from the layout of the site to such auxiliary facilities as feeders and feeder bins, hot oil or steam heated asphalt storage tanks, jacketed asphalt piping, oil or gas firing for the dryer, time lock mechanisms and specially designed dust collectors and material handling equipment.

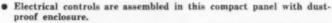
# Spencer Fellowship Awarded To Civil Engineering Student

Jake Allen Carpenter, graduate student in the School of Civil Engineering at Cornell University, has been awarded the second Herbert T. Spencer fellowship for research on a phase of bituminous materials.

 (Left): The star shape on the tip and shanks permit a variety of 16 adjustments for the tips. (Right): Tip is mounted flat on the shank.

The \$3,000 fellowship, established last year by the Esso Standard Oil Company, honors a founder and former president of the Asphalt Institute, whose career covers a half century of American construction history.

One of Esso Standard's specialists in the asphalt field for 29 years, prior to his retirement in 1941, Mr. Spencer was a pioneer in introducing heavy asphalt road oil in the East and helped promote the widely-used "penetration macadam" pavement.



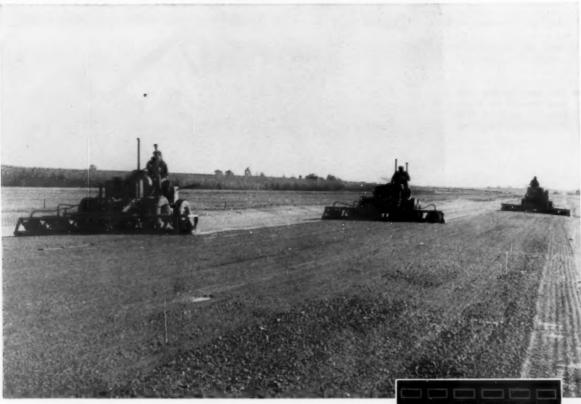


# LIKE TO BE

Engineer wanted with a talent for writing, who has had grounding in highway department of city street work, or is familiar with road contractor methods and equipment.

Position open on staff of a group publisher. Location, Chicago. Some travel with camera. Give qualifications and salary requirement in writing.

Box 1194, ROADS AND STREETS 22 W. Maple St., Chicago 10, Ill.



# IACKSON COMPA

MORE OF THEM USED ON AMERICAN TURNPIKE PROJECTS THAN ALL OTHER PAN-TYPE COMPACTORS COMBINED!!

The reason is two-fold. 1. The JACKSON, with its tremendously powerful vibratory action, provides 100% of specified density of any material normally used in macadam base or sub-base courses in the shortest possible time. Each unit in the workhead supplies 4200 THREE-TON BLOWS per minute. 2. IT'S FAR MORE VERSATILE THAN ANY OTHER COMPACTOR, ideally adjustable to each and every job requirement. Coverage is what you want it to be, up to 13', 3". Any arrangement of the compactor units, as indicated at right, is quickly attainable. With this machine you can compact areas others can't touch, a factor that eliminates lost motion and saves a great deal of time and money. And, of course, it is equally effective on all types of granular soil fills and similar projects. By all means inspect it at your Jackson distributor.



FOR SALE OR RENT AT YOUR JACKSON DISTRIBUTOR - name and descriptive literature sent on request.

· MICHIGAN

6 UNITS ABREAST FOR MAXIMUM COVERAGE & UNITS IN TANDEM FOR MAXIMUM ONE PASS CONSOLIDATION 4 UNITS (or it might be 5) TO EXACTLY.
FIT JOB WIDTH REQUIREMENTS 5 UNITS IN TANDEM AND STAGGERED, VARIABLE FOR A WIDE RANGE OF WIDTHS 4 UNITS TOWED AT SIDE OF TRACTOR. IDEAL FOR ONE PASS WIDENING OPERATIONS SHOULDER COMPACTION IS AUTOMATIC. End unit automatically assumes this position — no adjustment required. Prevents raveling

. . for more details circle 275 on enclosed return postal card

# New **Products**

(Continued from page 110)

# Twin-Spinner Spreader

A new "Shunk-Torwel" spreader for dump truck mounting has been announced. It is designed for sanding, cindering or salting for winter ice control work and for spreading stone, chips, calcium chloride, ag lime and other materials to meet a wide variety of applications.

Hardware for mounting is furnished with the new machine, and mounting or dismounting can be accomplished approximately in the same amount of time normally required for a tire

The machine is of twin-spinner design, and the spinner shafts may be been added to the Worthington "Blue

Brute" line.
With an overall length of 1071/2 in, the tamper is particularly suitable for preparing holes when setting utility poles. The crescent shaped butt is designed to fit utility work and provides easy "walking." The throttle valve has a lock-on clip to permit use of the tool while pack-filling the pole at the sur-

Portable Compressor and Contractor Tools Division, Worthington Corporation, Holyoke, Mass.

For more details circle 135 on Enclosed Return Postal Card.

# **Precision-Proportioned** V-Belt

Especially developed for use on oil rig pumps and other long center industrial drives, the new "Condor" LS belt (length stabilized) features a precision proportioned construction reported to eliminate whip and similar



New Shunk-"Torwell" Spreader

adjusted to the most efficient length for any given dump truck body. The spinner shafts extend through sealed tubular housings and operate in oil. Bearings at both ends of the shafts and a specially designed housing casting climinate any spinner shaft whip which might distort the spread pattern.

The new spreader is available in capacities of 5, 6 and 7 cu. yd., and larger capacities may be specified on

Shunk Manufacturing Co., Bucyrus, Ohio.

For more details circle 134 on Enclosed Return Postal Card.

# Long Backfill Tamper

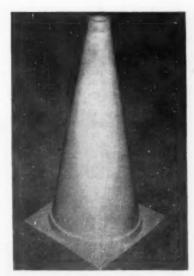
A new backfill tamper featuring an extra-long handle to facilitate tamping the bottom of deep holes has just cases of belt turnover and eventual failure. High tensile, super-strength synthetic fabrics have been used in the construction of the belt, which is performed before vulcanization to pre-serve the specially precisioned balance of the newly engineered component parts of the belt's internal structure.

Manhattan Rubber Division, Raybestos-Manhattan, Inc., Passaic, N.J.

For more details circle 136 on Enclosed Return Postal Card

## Cone Traffic Guide

A new traffic guide called "Poly-Cones," specially molded of Polyviny chloride, a tough plastic-type substance that remains pliable, has recently been introduced to the trade. It is stated that the cones will not crack or tear even when run over by the heaviest



Poly-Cones

trucks or busses, and remains "full color" for life, without peeling. The cones are available all yellow or with brilliant fluorescent color for extra visibility, and are designed to "nest" together thus taking up less storage.
Radiator Specialty Co., Charlotte,

For more details circle 137 on Enclosed Return Postal Card

# New Shield

A detachable "scatter shield" designed to confine blasted sand to a small area when used with the Cyclone Traffic Line Remover, Model TL-200 is shown below. It is stated that the outfit will erase about three feet of average worn center line per minute.

Cyclone Sandblast Equipment, 42 Clara St., San Francisco 7, Calif.

For more details circle 138 on Enclosed Return Postal Card



Cyclone Line Remover

# Steel Stake Bar

A new steel stake bar to go with its recently introduced steel stake is being offered contractors by Symons Clamp & Mfg. Co. The bar is a steel unit which offers six positions for holding steel stakes in positive distances apart distances varying in multiples of 2 in. -from 16 to 24 in. and is particularly adopted to low wall forming. The stake is being marketed in the following sizes: 12, 18, 24, 30, 36 and 42 in. Its flat surface with nail holes spaced 1 in. apart makes it easy to drive and nail firmly with no possibility of rolling. A pullout hole at the top permits fast removal with no special tool. Both the bar and the stake can be reused indefinitely.

Symons Clamp & Mfg. Co., 4249 West Diversey Ave., Chicago 39, Ill.



Symons Stake Bar

For more details circle 139 on Enclosed Return Postal Card.

# 11-Ton Rear Dump

Specially designed for underground operations and other jobs where clearance and maneuverability are important is the new low-silhouette version of the 11-ton Model D "Tournapul" rear dump. The unit's height is 8 ft. 11 in. while hauling and 11 ft. 8½ in. in dump positions.

In addition to reduction in overall height, this design incorporates a unique "squat" feature which permits lowering of the dump bowl to provide a loading height of only 65 in.—low enough to accommodate even the small tractor-mounted front end loaders. The



Boston Load Sweeper

"squatting" action is permitted by a simple-two-position air valve control. At one control setting, a pair of air rams project simple mechanical lock bars which engage with stops on the rear dump bowl to hold the unit in travel position. At the other valve setting the rams retract the lock bars from the stops and allow the bowl to move downward. The extreme of this travel is reached when the bottom of the bowl rests on the ground. At this point, load height of the unit is 5 ft. 6 in., 19 in. less than the standard Model D. Raising and lowering of the bowl is accomplished by an electric motor.

Le-Tourneau-Westinghouse Corp., Peoria, Illinois.

> For more details circle 140 on Enclosed Return Postal Card

# Tractor Shovel Sweeper

Construction Machinery division of the Clark Equipment Co., has announced the availability of a sweeper attachment for the "Michigan" line of tractor shovels.

Made by Clark-Wilcox Company, the "Boston Load" Sweeper has a simple design that permits speedy hook-up on the bucket of standard Michigan tractor shovels. The broom comes in sweeping widths from 50 in. for the model 12B to 100 in. for the model 175A

tractor shovel.

In operation, the combination unit works like this: the bucket is placed on the ground and the operator drives forward. He flips a hydraulic control and the broom rotates and sweeps refuse and dirt into the bucket for a clean swath. No overhang at the sides makes possible cleaning close to curbs and obstructions.

After the area has been swept, the operator merely raises the bucket and broom without spilling the material. When the load is over the haul truck, the operator tilts the bucket and the material spills out. Broom and bucket do not interfere with each other, permitting both sweeping and loading.

Sweeper Division, Clark Wilcox Co., 118 Western Ave., Boston 34, Mass.

> For more details circle 141 on Enclosed Return Postal Card.

# Sieve Shaker

A new pattern in shaking action has been built into the new, low cost Dynamic Sieve Shaker of Soiltest, Inc. The shaker gives the same accurate and complete sieving of all types of materials that were formerly separated on only larger, heavier and more costly shakers. The sieve shaker can be used for all types of field, laboratory and production sieving or grading operations on materials such as soils, sand, gravel, aggregates, chemical powders, plastics, powdered metal, small parts, bearings and similar granular or powdery substances.

The new shaking pattern involves the sieve platform being rotated in a small circular arc at the same time that it is being swayed in a vertical arc. An impact is imparted to the platform six times per revolution. The shaker motion continuously moves and redistributes the particles being analyzed over the sieve meshes. The tapping action assures proper separation of all materials and a fast flow of the materials through the sieve meshes.

Soiltest, Inc., 4711 W. North Ave., Chicago 39, Illinois.

> For more details circle 142 on Enclosed Return Postal Card.



LeT-Wesco Lo Dump

# Pipe Detector

Improved internal construction of the "Detecron" pipe detector has resulted in easier and more accurate use of the instrument, and reduces the possibility of cutting unknown pipes with bulldozer and ditching machines.

The new design produces a more stable field signal which makes it possible to tune the instrument more sharply. This in turn improves sensitivity and allows easier "separation" of pipes which run close together. Thus, two closely parallel pipes, which formerly showed as one can be detected independently.



"Detecron" pipe detector

The improvements have been incorporated into both the standard model 505 and 505-C combination pipe-leak detector.

Computer-Measurement Corp., 5528 Vineland Ave., Dept., Dept. 99, North Hollywood, Calif.

> For more details circle 143 on Enclosed Return Postal Card.

# Stalled Engine Starter

A new Model Mondak for starting balky engines in equipment trucks, and cars.

The new Mondak model goo mounts on either a 6 or 12-volt service vehicle and carries an auxiliary battery of the same type used in the vehicle. The unit becomes an integral part of the vehicle's electrical system and is permanently kept at full charge by the generator. The new model automat-

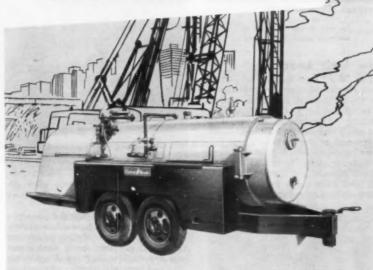


Mondak Model 300

# HAN KIRL EN

FAST, DRY STEAM

wherever wheels can roll...



# CLEAVER-BROOKS PORTABLE STEAMERS

125 HP 4300 lbs. of dry steam from a cold start in 30 minutes . . .

The PSM-125 maintains this pressure continuously... delivers steam on demand... in direct proportion to load. It puts more productive capacity into pile-driving hammers... has reserve capacity to match hammer sizes or heating requirements. Features one-control fire selector. All-weather protected. Fully fire-tested before delivery.

50 HP the huskiest multi-duty boiler in its range ever built

The PS-50 Cleaver-Brooks mobile steamer is the all-around machine you need . . . ideal for pile-driving, cleaning buildings, thawing culverts and dozens of other rugged jobs. You get quick steaming from a cold start . . . 1725 lbs. of dry steam per hour.

Cleaver-Brooks mobile steamers cost you less to run...get more work done ... cost less to maintain. Famous fourpass, forced draft economy design produces high velocity gases that keep



boiler flues clear of soot...minimize down time. Units are ASME code constructed...warranted to be free of defects in materials and workmanship. For complete details write:



COMPANY

Dept. A, 395 East Keefe Avenue, Milwaukee 12, Wisconsin

. , . for more details circle 249 on enclosed return postal card

ically starts any stalled engine when the unit's solid copper clamps are connected to the battery posts of the stalled engine and the remote control button is pushed. The Mondak automatically supplies double electrical power at the proper voltage to start either a 6 or 12 volt engine.

Mondak Products Co., Inc., 5758 W. Armitage, Chicago 39, Ill.

> For more details circle 144 on Enclosed Return Postal Card.

# New Unit Loader

The W-9 "Terraloader," a 4-wheel drive, rear-wheel steer tractor-loader in the 13/4-cu yd class, is first in a series to be offered by J. I. Case Co. Outstanding advancements in operation and safety include rigid lift-arms pivoted forward of the operator's seat, improved stability, power shift and steer, Torqumatic drive, speeds to 21 mph in both forward and reverse, with controls and color-coded instruments designed for easier, faster operation.



Case "Terraload'r"

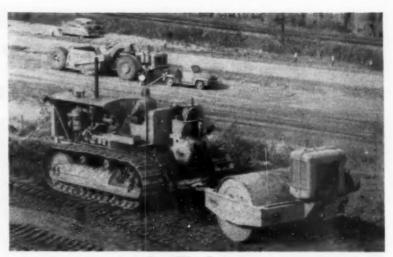
Overall length of the W-9 is 18 ft. 5 in. with bucket at carry, and the weight is 15,600 lb. It is powered by a 251-cu in., Case industrial engine, has 11,000 lb. breakout force at ground level, and 5500 lb lift capacity. Three interchangeable buckets are availablea 13/8-cu yd (heaped) heavy-duty digging bucket; 13/4-cu yd standard material bucket; and 23/4 cu yd light material bucket.

J. I. Case Co., Racine, Wis.

For more details circle 145 on Enclosed Return Postal Card

# Stabilized Base Mixer

A new stabilized base mixer that will provide from 300 to 500 tons per hour of aggregate thoroughly mixed with



Bros "Vibra-Pactor"

water, and calcium chloride when de-sired, has been announced by Iowa Mfg. Company.

The new unit, designated the model 2 twin shaft stabilized base mixer has discharge hopper, self-priming pump and meter, all mounted on a steel frame and supported drives, speed reduction unit and controls. Front and rear running gear are available to support the frame without legs on between-job moves. A calcium chloride feeder unit with metering gate, screw conveyor and drives is also available as optional equipment.



Iowa Mfg. Base Mixer.

In operation, aggregate is fed into one end of the mixer by a conveyor. As it enters the mixer the proper amount of water is sprayed on it

through nozzles. The water is controlled by a 2 in. self-priming centrifugal pump and water meter. (An optional water meter with electric flow indicator is available). The 60 paddles on the two shafts thoroughly mix the material to the correct moisture density and move it to the discharge hopper. The 21/2-yd. discharge hopper has clamtype gates for dumping directly into trucks.

Iowa Manufacturing Company, Cedar Rapids, Iowa.

> For more details circle 146 on Enclosed Return Postal Card.

# **New Vibratory Roller**

A new tow-type vibratory roller, the Bros. "Vibra-Pactor", features a static (gross) weight of 41/2 tons and a controlled variable frequency vibratory force equal to a range from 71/2 tons to 101/2 tons. Vibratory frequency range 1100 to 1300 vibrations per min-

Of special importance in the "Vibra-Pactor's" design is its quarter inch amplitude - the distance the drum is raised from the ground each revolution. This "thumping" or impact force combined with the drum weight is stated to help achieve densities in excess of standard AASHO requirements in heavy cohesive subgrade and embankment materials.

Unique bearing mountings in the drum isolate the bearings from the vibratory forces; the frame, too, is protected from vibration by special rubber mountings. Drum diameter is 48 in.; rolling width is 66 in. The machine is powered by a 40-hp gasoline engine. Optional dies I engine is available. Bros Incorporated, 1057 Tenth Ave.

S. E., Minneapolis 14, Minn.

For more details circle 147 on Enclosed Return Postal Card.

(Continued on page 133)

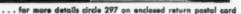
# SWENSON SPREADERS FOR ICE CONTROL

SPREADS SALT 200 LBS. PER MILE OR IN ANY DESIRED AMOUNT Lays a Narrow Strip or Full Traffic Lane

Handles all granular materials - salt, cinders, sand, calcium chloride, rock chips. Spreads at speeds up to 30 M.P.H. Clutch-controlled flow: steady or intermittent for hills and intersections.

Write for complete information

SWENSON SPREADER & MFG. CO. LINDENWOOD, ILLINOIS



# "Job Planned" Bodies

A new series of improved truck bodies introduced by Reading Body Works are designed especially for the construction industry with new structural reinforcement features. Extra rigidity has been added to all 18 utility models by the addition of 2 full width crosssills. General construction of the bodies, which range from ½ to 1 ton units



1/4 ton Service and Utility Unit

is of 12, 14 and 16 gauge steel, with understructure of 12 gauge steel.

Variable compartment and shelving arrangements provide unusually large storage and load areas. Compartment capacity ranges from 35 cu. ft. in ½ ton models to 68 cu. ft. in 1 ton models.

Reading Body Works, Inc., Reading, Pennsylvania.

> For more details circle 179 on Enclosed Return Postal Card.



Clayton's "Blast Master" Cleaner

# Heavy Duty Steam Cleaner

The 280 "Blast Master" is announced by Clayton Manufacturing Co. as a highly versatile steam cleaner designed specifically for fleet operators, heavy equipment distributors, contractors, industrial plants, oil field operations, aircraft maintenance, truck dealers, marine users, and car washers. It is self-contained, fully automatic, and delivers all or any part of a full 280 gal per hour of balanced cleaning solution in a manner making it equally effective for light, medium, heavy, or extra heavy cleaning.

The great versatility of this cleaner is attributed to the new and exclusive "Fleximatic Control," which automatically regulates fuel to the burner and water flow to the coil, permitting the operator to select and use any part of



Rolatape Model 400

the total capacity—from as little as 50 gph from one or two guns singly or simultaneously, to as much as 280 gph. Accurately controlled vapor delivery permits effective heavy duty cleaning at distances of 3 feet or more.

Clayton Manufacturing Co., 401 North Temple Blvd., El Monte, Calif.

> For more details circle 180 on Enclosed Return Postal Card.

# Improved Measuring Wheel

A 30-in, extended handle enables a car driver to guide the new Model 400 Rolatape measuring wheel with minimum effort while operating at moderate speed. The entire unit is strongly built and assures accurate road measurements in feet up to a distance of nearly 19 miles. A special stand enables the driver to park measuring wheel in upright position without leaving the car.

Rolatape, Inc., 1741 Fourteenth St., Santa Monica, Calif.

> For more details circle 181 on Enclosed Return Postal Card.

# 210-CFM Compressor

Gardner-Denver has announced the addition of the model RP210 to its line of rotary portable air compressors. Other models are rated at 125, 365, 600 and 900 cu. ft. per minute. For cold weather it is stated that, with the clutch disengaged, the engine starts freely, and



Gardner Denver Rotary.

warm engine water circulates through the compressor oil cooler and reservoir, thus supplying warm, free-flowing oil to the compressor as soon as it starts turning.

The RP210 is said to require only a few minutes for inspection of working parts. Removal of 12 cap screws, which are easily accessible from the rear of the machine, is all that is required to expose the blades for inspection or replacement. Power is by either gasoline or diesel engine; available on two or four wheels or wood skids.

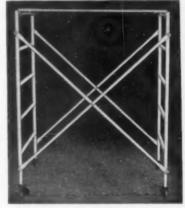
Gardner Denver Co., Quincy, Illinois.

For more details circle 182 on Enclosed Return Postal Card.

# **Folding Scaffold Unit**

A new all steel light duty scaffold unit that folds compactly for moving or storage, has been introduced by Bil-Jax Inc. Called the "Handyman", the unit is 6 ft. high, (plus caster height) and the plywood platform is 5 ft. long. Overall width is 28 in. The platform can be removed from top rung and placed on any rung desired. The 3 in. swivel casters are rubber tired and of the locking type.

Bil-Jax, Inc., Archbold, Ohio



Bil-Jax Scaffold Unit

For more details circle 183 on
Enclosed Return Postal Card.

# **Barricade Flash Light**

A new big beam barricade safety light called "Transista Flash" Model 410T, announced by U-C-Lite Mfg. Co. uses a modern transistor circuit to lengthen battery life and to produce approximately 1500 continuous operation hours from two standard 6-volt lantern batteries available from usual sources.

Special weatherproofing has been accomplished through a dipping application to the flashing mechanism and by designing a hinged, telescoping top to prevent water entering the battery case. The hinging also makes it possible to change batteries quickly and prevents



Transista Flash Model 410T

loss of top or bottom of case. An acidproof plastic liner in the container prevents corroding of interior by acid from dead batteries. There are no moving parts in the entire unit. Flashing head is two directional. Lamp is available with either red or amber optical plastic lenses. Flash rate is approximately 72 times per minute. U-C Lite Mfg. Co., 1050 W. Hubbard St., Chicago 22, Ill.

For more details circle 184 on Enclosed Return Postal Card.

# All-Purpose Distributor

Municipal Supply Co., manufacturers of "South Bend" road and street equipment, have just announced a new bituminous distributor, the "Thrift-line". It is an all-purpose unit designed for the economical heating and applying of all types of bituminous material on large or small jobs. A fog-proof rear housing which covers the pump, engine and piping keeps all operating parts running at top efficiency and pro-



Municipal Distributor.

vides a clean-cut appearance for the unit. It also serves as a high operator platform, giving 360° visibility, up out of the fog.

Operation is said to be extremely simple. Two controls perform all functions: distribution, suck-back, hand spraying, filling, circulating and transferring. Completely enclosed fireproof burner boxes are designed to snuff out the troublesome burner box fires.

Standard equipment includes a 36 hp., air-cooled engine; 375 gpm. pump; 12-ft. suck-back spray bar with positive cut-off; hand patching hose and spray arm; 5th wheel tachometer and pump tachometer; and hydraulic spray bar lift. Standard tank sizes are 1000, 1250, and 1500 gal., all for truck mounting. Municipal Supply Co., Dept. T-45, 2508 S. Main St., South Bend, Ind.

For more details circle 185 on Enclosed Return Postal Card.



Schroeder Tester

# Oil Circuit Tester

A new portable oil hydraulic circuit tester has been added to the line of Schroeder Bros., Corp. The tester is claimed to be ideal for use on hydraulic construction and earth moving equipment.

The model PT-100-B is designed to save maintenance time and eliminate unnecessary downtime of equipment in the shop or field. Weighing 19 lbs, it can be easily carried to the scene, connected to the hose, the component part to be tested, and to a low pressure return line in a matter of minutes. The tester is claimed to accurately measure temperature, volume and pressure, and rapidly pinpoint a faulty hydraulic pump, valve or circuit.

Schroeder Bros., Corp., McKees Rocks, Pa.

> For more details circle 186 on Enclosed Return Postal Card.

# Gas Chain Saw

A new direct drive gas chain saw with quality construction, yet competitively priced, has been announced by Porter Cable. The model 534 is designed for compactness, portability and power which will last over long periods of operation. Designed and engineered to tackle the toughest cutting job, the saw is stated to have outstanding power and stamina for felling and cutting



Porter-Cable Chain Saw

trees up to 48 in. in diameter,

Available with 14 in., 16 in., 20 in., or 24 in. bar sizes, the model 534 has a rugged 4½ hp. engine. The combination of engine and chain provides fast, clean cutting with minimum vibration. Its light weight and balance contribute to ease of handling.

Porter-Cable Machine Co., 117 Exchange St., Syracuse 4, N.Y.

For more details circle 187 on Enclosed Return Postal Card.

# 8x6 Truck With Front and Rear Axle Drive

The first commercial four-axle 8x6 truck designed with driving power to the front axle of a front tandem as well as to both axles of a rear tandem will be shown by Four Wheel Drive Auto Co. during the combined equipment exposition of the National Ready Mixed Concrete Association and the National Sand & Gravel Association at Chicago, Feb. 10-12. This new heavyduty truck with capacity for carrying concrete loads as great as 10 cu. yd., features tilt cab styling and will be shown with separate engine type 81/2 cu. yd. mixer. It is called FWD'S model C86-707.

The new truck is designed with constant drive to three of its four axles through FWD'S torque-proportioning, free-acting center differential. One fifth of the drive-line torque powers the forward axle of the front tandem while the remaining four-fifths is proportioned equally between the two driving axles of the rear tandem. A non-powered steering axle is located behind the foremost driving axle to provide additional load capacity and flotation.

Various other FWD models will be shown at the exposition in February. Four Wheel Drive Auto Co., Clintonville, Wis.

> For more details circle 188 on Enclosed Return Postal Card.

# New **Products**

(Continued from page 130)

# Portable Drafting Machine

A new design portable drafting machine, so compact that it can be folded jack-knife style to fit in the pocket when detached from its drawing board, has just been introduced.

Called "Draftee," the new precision instrument is available attached to a portable drawing board that fits easily into a briefcase. The unit takes the place of a T-square, ruler, protractor and triangles.

David Miller & Associates, Box 572, Beverly Hills, Calif.



Miller Drafting Machine

For more details circle 148 on Enclosed Return Postal Card

# **New Jacks**

A new type jack added to the Simplex line of "steamboat ratchets" by Templeton, Kenly & Co., is designed for work on coffer dams and concrete, steel and bridge construction.

The new features are as follows: Removable end linkages achieved by bolt joint rather than fixed linkage joint, to provide greater flexibility of use. Various type linkage methods can be interchanged as desired to provide a wider range of applications and it can also be used without linkage, permitting special hook-ups through screw eyes, for special jobs.

The jack is available in 15 and 20 ton capacities and can be furnished with any combination of hooks, including shackles.

Templeton, Kenly & Co., Broadview,



Templeton, Kenly Jack

For more details circle 149 on Enclosed Return Postal Card.

# NOW! FASTER TESTS . . . MORE TESTS . . .



.. WITH THE SAME MANPOWER!

THE KEY TO ACCURATE FIELD TESTS FOR MOISTURE DENSITY IN EM-BANKMENT AND FOUNDATION SOILS.

The DENSE-O-METER is light in weight, compact, very portable, easy and economical to operate and maintain!

Developed after two years research by Department of Highways, State of Washington. Opens up entirely new possibilities for foundation and soils engineers and contractors who can now make accurate moisture-density and compaction tests, quickly and easily.

- in large or small holes
- in all types soils and granular base materials
- in approximately 3 minutes after hole is dug

CONTRACTORS AND ENGINEERS: Stop over-compaction, under-compaction . . . make moisture density determinations many times daily with a DENS-O-METER.

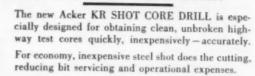
Get full information from **Exclusive Sales Agents** 

# Charles R. Watts & Co.

6th N.W. & Leary Way Seattle, Washington

# FOR FAST, ECONOMICAL HIGHWAY TEST CORES

The New Acker KR Shot Core Drill!



Improved Acker design assures clean-cut core recovery up to 20" in diameter even from steel reinforced concrete.

Get the facts today—ask for Bulletin 19 R & S.



kerosene, diesel, electric or air motor

KER DRILL CO., INC.

SCRANTON 3. PA.

Manufacturers of diamond and shot core drills and supplies. ... for more details circle 237 on enclosed return postal card

# Manufacturers' Literature

Schield-Bantam Co., Waverly, Iowa, has issued a 4-page bulletin (CR-502) describing the self-propelled Model CR-35 Bantam. It contains detailed information on the 3/8 cu. yd. 7-ton self-propelled crane excavator. One page is devoted exclusively to machine specifications and capacity ratings.

For more details circle 150 on Enclosed Return Postal Card.

EQUIPMENT FOR CONCRETE INDUSTRY. Clark Industries, Construction Equipment Division, 375 E. Fifth Ave., Columbus 1, Ohio has published this 12-page catalog illustrating and describing bulk cement batching plants for the ready mix operator, bulk cement storage and batching equipment for the concrete products manufacturer and automatic cement and aggregate weigh batchers for the contractor.

For more details circle 151 on Enclosed Return Postal Card.

EQUIPMENT LUBRICATION. The Whitmore Mfg. Co., Cleveland 4, Ohio, provides this handy reference guide in determining the correct Whitmore lubricant to use for specific equipment application and for varying seasonal temperatures. More than 40 lubricants are described.

For more details circle 152 on Enclosed Return Postal Card.

RECENT ADVANCES IN DREDGES, a 16page bulletin available from Ellicott Machine Corp., 1611 Bush Street, Baltimore, Md., discusses the increasing versatility of low-cost portable hydraulic pipe line dredges. Thirty-eight photographs show Ellicott's dredges in operation on a variety of jobs. Portability, size, engineering and design features are discussed.

> For more details circle 153 on Enclosed Return Postal Card.

AUSTIN POWDER Co., Cleveland 13, Ohio, has released a 2-page bulletin (LL-6126) describing its APA drag bit drill head. It demonstrates how this drilling pattern can increase production and reduce bit wear in air drilling of soft rock formations.

For more details circle 154 on Enclosed Return Postal Card.

THE COMPLETE LINE OF CONTRACTOR PROVEN HIGH CAPACITY EQUIPMENT is the title of a new catalog issued by the M-R-S Mfg. Co., Flora, Miss. It covers the complete line of M-R-S heavy diesel wheel tractors and the complete line of allied equipment manufactured for use with M-R-S tractors. Brief specifications and a detailed

description of the advantages of the company's hydraulic weight transfer are included.

> For more details circle 155 on Enclosed Return Postal Card.

SEAMAN-GUNNISON CORP., 2763 South 27th St., Milwaukee 15, Wis., has issued a 4-page circular on its new self-propelled, self-loading utility scraper. The scraper has 4-5 cu. yd. struck capacity; 6 cu. yd. heaped speed through city streets or on paved highways under its own power is up to 21 mph. Principal features and specifications are described and illustrated.

For more details circle 156 on Enclosed Return Postal Card.

DAYBROOK HYDRAULIC DIVISION of L. A. Young Spring and Wire Corp., Bowling Green, Ohio, describes and illustrates Speedlift Hydraulic Hoists in a recently published broadside. This shows a cutaway of Daybrook's sealed cylinder, which has a 1-year warranty. Also illustrated are special features of the hoists and pumps available for every chassis and dump body style or power application. Another new broadside provides data on Speedlift Dump Bodies.

For more details circle 157 on Enclosed Return Postal Card.

PRINCIPLES OF CONTINUOUS ASPHALT PLANTS, a 24-page full color folder, No. 7145, has been announced by Barber-Greene Co., 400 N. Highland Ave., Aurora, Illinois. It contains graphic picturizations of how one of these plants operates, the differences between continuous and batch plants, plant functions and the methods of continuous measuring of aggregates and asphalt. A section is devoted to laboratory analyses of continuous mixes as well as to common questions and answers.

For more details circle 158 on Enclosed Return Postal Card.

DITCHERS. BARBER-GREENE Co., 400 N. Highland Ave., Aurora, Ill., has issued a 4-page circular, Form 3547, showing five ditching machines: model 774 wheel ditcher for big jobs; model 702 for narrow trenches; model 705-B runabout for scattered jobs; model 771 for widely scattered jobs; model 784 for city work.

For more details circle 159 on Enclosed Return Postal Card.

SILENT CHAIN DRIVES (Book 2425), available from Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill., contains 88 pages of detailed engineering data and illustrations of the versatility of silent chains in a wide range of applications. The book also contains tables of service factors, ratings, chain lengths and center distance computa-

tions. Pre-engineered stock drives are listed, and a 22-page section outlines procedures for selections of engineered drives.

> For more details circle 160 on Enclosed Return Postal Card.

SEVEN KEYS TO WELDING PROFIT (through the use of a Cat twin arcwelder), an 8-page booklet, Form D761, available from the Advertising Division, Caterpillar Tractor Co., Peoria, Ill., points out the seven key factors making the use of welders profitable. The booklet stresses reliable Caterpillar power, two steady arcs, dual controls, parallel power, diesel economy, portability and dealer service. Action pictures focus attention on each of the points.

For more details circle 161 on Enclosed Return Postal Card.

"STUDY FOR MANAGEMENT-THE UNI-VAC II DATA AUTOMATON SYSTEM", a 196-page manual to inform management on the electronic computer, has been published by Remington Rand Univac, 315 Fourth Ave., New York 10, N. Y. It begins with a study of the data processing areas, a listing of cur rent computer applications and a survey of the types of data processing systems. Then follow considerations for electronic data processing, the operations of the Univac system itself, a complete introductory course of Univac programming, and the design of systems. Complete details on how information is represented for the computer, how it is processed, and how the Univac insures accuracy are also included, along with tested exercises and their answers.

> For more details circle 162 on Enclosed Return Postal Card

THE THEW SHOVEL COMPANY, Lorain, Ohio, has just published an 8-page catalog describing the new 35-ton Lorain Moto-Crane, model MC-530, recently added to its line of power shovels and cranes. This new unit offers a full rated 35-tons lifting capacity on a narrow gauge 108 in. wide carrier. New developments are enumerated. A second Thew catalog gives detailed features of the company's newly-introduced self-propelled, shovel crane, model SP-107. Dramatic action views demonstrate the full mobility in crowded quarters and the tractive effort for off-the-highway travel of this versatile 3½ yd., 7-ton machine.

The interchangeable shovel, clamshell, dragline, hoe and crane front ends are described and shown in action.

For more details circle 163 on Enclosed Return Postal Card.

"Aerial Ground and Subsurface Investigations" is the title of an 8-page illustrated brochure describing the engineering services offered by two cooperating firms of specialists, Hunting

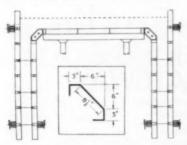
# **Culvert Forming**



# Symons Develops New Haunch Form for Culverts

Symons Safety Shores Used to Support Slab

Symons now has a new 9 x 9 inch steel haunch section designed to connect Symons standard wall panels and slab panels for the monolithic pouring of culverts. This new section provides for a 3-inch face on the roof slab and



on the wall with a 45-degree-angle surface  $8\frac{1}{2}$  inches wide between wall and roof. No built-up forms or other special equipment is necessary.

Made of 11-gauge hot rolled steel this new section is available in 4, 6, and 8 foot lengths. It can be used with either metal frame or wood frame forms. Symons regular form hardware is used for securing the steel section to Symons standard forms. No special fittings are required.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons products is available upon request.



SYMONS CLAMP & MFG. CO.
4283 Diversey Avenue, Dept. A8
Chicago 39, Illinois

Technical and Exploration Services, Ltd., 1450 O'Connor Drive, Toronto 16, Canada, and Soil Testing Services, Inc., 3521 N. Cicero Ave., Chicago 41, III.

> For more details circle 164 on Enclosed Return Postal Card.

ALLIS-CHALMERS, Milwaukee 1, Wis., has issued the following bulletins: "Accessories and Attachments for Allis-Chalmers Motor Graders" (MS-1161), a 4-page, folder illustrating and describing this extra equipment.

describing this extra equipment.

Catalog MS-1247 on the B-125 power unit, contains specifications, descriptions, and pictures, plus a list of special equipment available to expand the versatility and use of the engine.

8 pages

Pocket-size Catalog MS-1272, briefly covers the company's line of construction equipment with descriptions, primary data, and pictures. 16 pages.

For more details circle 165 on Enclosed Return Postal Card.

ALLISON TRANSMISSION FOR LIGHTER TRUCKS, an 8 page booklet announcing the availability of Allison "Torqmatic" drives for highway trucks and miscellaneous construction equipment. Illustrations supplement the brief outlines of uses of these transmissions, and a condensed table of gear and torque converter ratios provides fundamental data. Available from Allison Div., General Motors Corp., Indianapolis 6, Ind.

For more details circle 166 on Enclosed Return Postal Card.

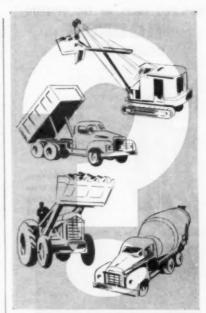
ALL-WHEEL-DRIVE TRUCKS, a new 8 page catalog describing and illustrating 6 heavy-duty International alliwheel-drive truck models of cab-forward design is available from Customer Relations Dept., International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. Included are the four-wheel-drive International models AC-170 and AC 180- (4x4) with GVW ratings of 18,000 and 20,000 lb. respectively and 4 six-wheel drive International models in the ACF-170 and ACF-180 (6x6) series with GVW ratings from 22,000 to 33,000 lb.

For more details circle 167 on Enclosed Return Postal Card.

MASONRY AND CONCRETE SAWS, brochure #2006, available from Clipper Mfg. Co., Suite 232, Kansas City 8, Mo., contains latest information on masonry and concrete cutting blades. Diamond, break-resistant and abrasive blades are covered, including small diameter for use on all power hand saws.

> For more details circle 168 on Enclosed Return Postal Card.

ROAD AND AIRPORT PAYING FORMS, distributed by Clark Industries, Construction Equipment Div., 375 East 5th Ave., Columbus, Ohio, is a four page



# DO YOU KNOW OR ASSUME YOUR EQUIPMENT IS BUSY?

# SERVIS RECORDERS TELL YOU AT A GLANCE WHEN IT IS — HOW LONG IT'S IDLE

For every piece of equipment that moves during work, trucks, front-end loaders, ready-mixers, graders, etc., bolt on a tamperproof Servis Recorder and it will accurately chart busy time and all stops or delays.

It writes its own permanent record for daily, weekly or for 3 day periods.

You can put your finger on costly delays or overtime and determine the cause from this unquestioned record. Proven by over-the-highway haulers and industry for 46 years, low-cost Servis Recorders are ready now to help you increase productivity and profits.



Ask for the name and address of Mr. S-R, our nearest qualified reprepresentative, for help on your problems or write for our new "Off-the-Highway Bulletin"

135

SERVICE RECORDER COMPAN

THE SERVICE RECORDER COMPANY
1013Z Rockwell Ave. • Cleveland 14, Ohio

. . . for more details circle 293 on enclosed return postal card

ROADS AND STREETS. January, 1958

. . , for more details circle 296 on enclosed return postal card

Get Full Facts on the original

# ROGERS

DOZER RIPPERS QUICK ON ... .. QUICK OFF



RIPS ROCK CONCRETE HARD PAN

> Eliminates many types of drilling and shooting

multiples



Write for name of nearest dealer E. A. ROGERS COMPANY P.O. Box 1016, Grass Valley, Calif.

> for more details circle 291 on enclosed return postal card



television in many. Direct tunnel connection to Pennsylvania Station. All transportation facilities at door. Three air-conditioned restaurants GOLDEN THREAD CAPE

Doubles : | Suite from \$11 from \$7 JOSEPH MASSAGLIA, JR., President

CHARLES W. COLE, Gas. Mg Other MASSAGLIA HOTELS

- SANTA MONICA, CALIF. Hotel Mirama
- SAN JOSE, CALIF. Hotel Sainte Claire LONG BEACH, CALIF. Hotel Wilton
- GALLUP, N.M. Hotel Et Rancho ALBUQUERQUE, Hotel Franciscan
- DENVER, COLO. Hotel Park Lane
- WASHINGTON, D.C. Hotel Releigh
- HARTFORD, CONN. Hotel Bond
- · FITTSBURGH, PA. Hotel Sherwyn · CINCINNATI, O. Hotel Sinten
- . NEW YORK CITY Hotel New Yorks HONOLULU Hotel Waibibl Bills

World-fumed hatels Teletype service—Family I

bulletin (CRPF-376) covering design, specifications and applications of new Clark paving forms with exclusive Wedge-Lok-Joints.

For more details circle 169 on Enclosed Return Postal Card.

SIKA CHEMICAL CORP., 29-49 Gregory Ave., Passaic, N. J., has released an 8 page catalog on its various products. Included are descriptions of "Plastiment" retarding densifier and "Sila-crete" accelerating densifier for con-crete admixtures; "Rugasol"-C retardant concrete coating and "Rugasol"-F retardant form coating, and gas joint sealer, a non meltable mastic water stop.

> For more details circle 170 on Enclosed Return Postal Card.

THE ROAD AHEAD, a new color motion picture designed to explain the U.S. Highway program to the public, has recently been released by Caterpillar Tractor Co. in cooperation with the U.S. Dept. of Commerce, Bureau of Public Roads. Narrated by popular commentator Walter Cronkite, the 23minute film illustrates how the 41,000mile, \$50-billion program will be planned, built and used. The film shows how completed interstate highways will look and explains the provisions of the road program in easy-tounderstand terms.

Such terms as "relief routes," "limited

access," and "improved farm-to-market roads," are fully defined. "The Road Ahead" also describes the citizen's part in making these new highways a reality.

Copies of "The Road Ahead" for showings to groups and organizations can be obtained from Caterpillar dealers or by writing to the Advertising Div., Caterpillar Tractor Co., Peoria,

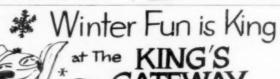
For more details circle 171 on Enclosed Return Postal Card.

Up-Grading Aggregates. Eight page booklet describing and illustrating Blaw Knox gravel beneficiation, a new low cost process for up-grading aggregates. Booklet explains the electric fractionation of the gravel beneficiation process, how the process works, actual results, and how it benefits producers. Gravel Beneficiation, Construction Equipment Div., Blaw-Knox Co., Mattoon, Ill.

> For more details circle 172 on Enclosed Return Postal Card.

MAINTENANCE GUIDE FOR CAT D2, D4 AND D6 TRACTORS, a 24 page book-





Thrill to a winter wonderland weekend or full vacation.

# EVERYTHING TO DO

Ice Skating (Instruction available) • Skiing-3 Ski Tows Operating Daily (Instruction and all necessary equipment available) • Snowshoeing • Tobogganing • Ski-Joring • Sleigh Riding • Hunting • Ice Fishing

# EASY TO REACH

Write for information

reservations.

On U.S. 45 on the Wisconsin-Upper Michigan Border at Land O'Lakes, Chicago & North Western R. R. offers Pullman Service to Land O'Lakes-overnight from Chicago and Milwaukee.

MUSIC . DANCING . ENTERTAINMENT Land O'Lakes let form DE768, available from Advertising Div., Caterpillar Tractor Co., Peoria, Ill. has been prepared especially for operators. Its primary purpose is to supplement the more detailed information in the Cat "Operation and Maintenance" book. The guide has more than 80 full color drawings illustrating helpful service tips and tells how one machine owner improved the performance and longevity of his tractor through good maintenance.

> For more details circle 173 on Enclosed Return Postal Card.

BROS NEW HI HEAT OIL HEATER IS the subject of a 4 page folder issued by Bros. Inc., 1057 Tenth Ave., SE., Minneapolis 14, Minn. The heater generates temperatures up to 500°F and operates at pressure below 15 psi. Brochure points out unique features of the heater among them being the fact that now the entire electrical system of the unit is weather-proofed and all controls are centralized on a weatherproof electrical control box.

> For more details circle 174 on Enclosed Return Postal Card.

SUMP PUMPS, a 4 page catalog 2-101, released by Economy Pump Div., C. H. Wheeler Mfg., Co., 19th and Lehigh Ave., Philadelphia 32. Pa. describing Wheeler-Economy 3 and 4-in. sump pumps. Contains complete design and construction details. Cutaway drawing of typical pump is shown with descriptions of its 18 principal features. Performance data and part types are listed.

> For more details circle 175 on Enclosed Return Postal Card.

SNOW PLOWS, BLADES AND WINGS. Wausau Iron Works, Wausau, Wis. Four sections of four pages each fully illustrated, describes high speed blade snow plows, vee type snow plows, wings, and trip blades.

For more details circle 176 on Enclosed Return Postal Card.

DESIGN PRACTICES AND USES OF PRE-MOULDED JOINTS IN CONCRETE PAVE-MENT, a new manual released by the Expansion Joint Institute, 121 Hill Ave., Aurora, Ill., includes comprehensive technical data and illustrations on the many types of premoulded joints, their applications and installation.

For more details circle 177 on Enclosed Return Postal Card.

PAVING FORMS, 4 page bulletin CRPF-376 released by the Clark Industries, Construction Equipment Div., 375 E. Fifth Ave., Columbus 1, Ohio. The bulletin describes and illustrates the Wedge-Lok heavy-duty self-aligning paving forms. Specifications are included.

> For more details circle 178 on Enclosed Return Postal Card.

# With the Manufacturers and Distributors

THE NOBLE COMPANY, Oakland, Calif., manufacturers of mobile and stationary cement aggregate batching plants and related equipment announces the opening of a new branch office at 52 Vanderbilt Ave., New York 17, N.Y. Arthur P. Jensen, formerly of the company's Scattle office, is regional manager of the Manhattan branch.

LORING S. BROCK was appointed manager of structural and plate products for United States Steel Corporation, effective December 1, 1957. He will succeed Fred H. Lucas, who retires on that date.

HERCULES MOTOR CORP. has taken over the manufacture of two Lycoming air-cooled industrial engines, now being made by Lycoming Div., Avco Corp., Williamsport, Pa.

EDWARD W. FLAMME has been appointed district sales manager of the Portland, Oregon district sales office of the Reo Division of The White Motor

MATHIAS MUTTER has been elected President (production) of Soiltest, Inc., Chicago manufacturer of civil engineering testing equipment.

(Continued on next page)

# PREFERRED in KANSAS CITY, MO.



100% AIR-CONDITIONED

Home of the famous Rhythm Room

Free Parking

# BUSINESSMEN, by EXECUTIVES, **FAMILIES**

During certain convention periods, all available Kansas City hotel rooms are frequently taken.

You can be assured of comfortable accommodations in Kansas City, by writing for your FREE "Preferred Guest Card" from the Bellerive Hotel, today. The Bellerive-preferred by the family, and business executives for convenience and courteous hospitality at sensible rates-guarantees (with advance notice) reservations anytime of the year to you, the preferred guest. Ask for your "Preferred Guest Card", today . . . at no obligation. Free Radio & Television set in every Room, Rates from \$

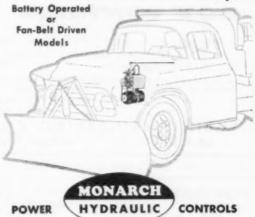
# BELLERIVE

214 East Armour at Warwick Boulevard

IN CHICAGO IT'S THE HAMILTON HOTEL 20 S. Dearborn Street

ROADS AND STREETS, January, 1958

# Lift Snow Plows automatically!



Lift or lower your snow plow automatically . . . with Monarch Power Hydraulic Controls. One man operates the plow right from the truck or jeep cab. Snow removal is faster, easier and more efficient. See your dealer or write for full details.

MONARCH ROAD MACHINERY COMPANY 1331 MICHIGAN ST., N. E.-GRAND RAPIDS 3, MICHIGAN

. . . for more details circle 283 on enclosed return postal card



All neatly packed in a sturdy metal box. Heavy gauge steel. Closely spot welded for durability and strength. Lid fitted with 3 but hinges and streng padlock hasp.

C.O.D. ORDER 20% REQUIRED. D & B RATINGS OPEN A/C.

TUBIN ENGINEERING COMPANY

Dept. 40 321 W. Pice Blvd. - Los Angeles 15, Calif.

# With the Manufacturers and Distributors

ROBERT A. BEVER, with wide experience in the heavy equipment export field, has been appointed export sales representative for R. G. LeTourneau Inc., of Longview, Texas.

KWIK-MIX Co. (a division of Kochring Co.), Port Washington, Wis., has named the following distributors for territories adjacent to or near their respective headquarters: Contractors Sup-

ply Co., 410 S. Dean St., Englewood, N.J.; R&R Equipment Co., 35, Route 22, Hillside, N.J.; R. H. Machinery, Inc., 2923 W. Superior St., Duluth, Minn.; The Olsen Equipment Co., 4411 Hiawatha Ave., Minneapolis, Minn.; Industrial and Foundry Supply Co., Inc., 2500 Union St., Oakland, Calif.; Malcom G. Stevens, 78 Summer St., Arlington 74, Mass.

THE CONSTRUCTION MACHINERY DIV. of Clark Equipment Company has announced the appointment of Ralph Hall as field service representative for the "Michigan" line in Pa., Ohio, Va., West Va. and Kentucky.

THE POWER TOOL Co., Prudential Plaza, Chicago, has announced the appointment of William J. McGraw as general sales manager, Walter G. Mitchell, as general manager of product development, and Milton E. Slater as sales manager of farm and ranch division.

BUCYRUS ERIE Co., South Milwaukee, Wisc., has appointed Lewis C. Black assistant general sales manager in charge of sales of large machines and blast hole drills. He had been sales manager-large machines.

RALPH E. KEIDEI, manager of advertising and sales promotion for Euclid Division of General Motors, Cleveland, was elected General Chairman of Construction Equipment Advertisers at a recent meeting of the association in Chicago. He succeeds M. B. Jaeger of Bucyrus Erie Co.

PROPOSED PLANS for merger of Dresser Industries, Inc., Dallas, Texas, and Gardner-Denver Co., Quincy, Ill., have been abandoned.

ERLINDER EQUIPMENT CORPORATION, 12221 S. Indiana Ave., Chicago, Ill., has been appointed Chicago-area distributor by Daybrook Hydraulic Division, Young Spring & Wire Corp., Bowling Green, Ohio.

EAGLE SIGNAL CORPORATION, Moline, Ill., announces the appointment of Traffic Engineer's Supply Corp., 5204 Lakeside Ave., Richmond 28, Va., as sales representative in the states of North Carolina, South Carolina, Virginia and West Virginia, except the pan-handle section.

JOHN D. JONES has been promoted to manager, Industrial Relations Section of the Tar Products Division, Koppers Company, Inc., it was announced by R. R. Holmes, vice president and general manager of the division. Formerly a labor relations assistant for the division, Mr. Jones succeeds A. K. Black II, resigned.

BAILEY BRIDGE EQUIPMENT Co., San Luis Obispo, Calif., is now sales representative of Contractors Service Limited, Toronto, for the distribution of Bailey bridges in the western states and Hawaii. Bailey Bridge Equipment Co. will con-

tinue with both rentals and sales of Bailey bridges under the management of C. F. Hamlin, civil engineer and formerly senior bridge engineer, California bridge department.

HARNISCHFEGER CORP. has announced the appointment of R. P. Jones as general manager of the company's soil stabilizer and Sierra loader activities. In his new position, Mr. Jones will be responsible for sales, engineering, production and service of both product lines, working directly with Jack Catalane, general sales manager of Harnischfeger's construction and mining division.

ENGINEERS — FOREMEN — OFFICE MEN Learn latest methods to organize and run work. Prepare for the top jobs. Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Loke Worth, Florida

# ASPHALT DISTRIBUTORS

- 1,595-GALLON ETNYRE semi-trailer; full circulating bars and hand spray; low pressure atomizing burners; LeRoi engine; 4 good 900x20 tires. Unit in first class operating condition, now working .\$4,000.00
- 1,285-GALLON ETNYRE; full circulating bars and hand spray; low pressure atomizing burners; front end Ford V8 engine power; mounted on 1954 Ford F-700 truck. A 1954 complete original unit in first class condition, thoroughly overhauled and checked in our shop and ready for work .....\$4,500.00
- 1,069-GALLON ETNYRE; non-circulating bars; rear end LeRoi engine mount; generating burners; mounted on good 1947 Diamond T truck. Completely rebuilt and checked in our shop ...\$2,750.00

# SPREADER BOXES

- 10-FOOT BUCKEYE spreader box used only 30 days by Texas county. A practically new box for only \$800.00
- 11-FOOT BUCKEYE, an older box but in excellent condition for \$ 600.00
- 11-FOOT GRACE spreader box, convertible to trailer, with agitator, good tires, used but in excellent condition. . . . . . \$ 600.00

# ROLLERS

- 8 to 12 TON GALION TANDEM; Hercules gas engine, clutches, transmission all good . . . . . \$3,250.00

## FRONT END LOADER

TD-9 INTERNATIONAL with Drott 1½-7d. bucket. Diesel engine. A 1954 machine, used very little and in First Class condition throughout. . . \$4,500.00

# **McElroy Transport Co.**

3513 E. Belknap Phone TE 8-2211 Fort Worth, Texas

FOR SALE
Ten—Fully Equipped Tractor-Troller Dumps
RF-195 L.H.C. landem, twin-screw tractors, 24,000
RF-195 L.H.C. landem, twin-screw tractors, 24,000
RF-195 L.H.C. landem, la

litter, paint.

All Equipment Ready For Work

Writs or phone

GLENN KENWORTHY

Clayton, Indiana Phone 9130

# FOR SALE!

# NORTHWEST 95 COMBINATION CRANE DRAG, AND CLAM

WITH 75 FOOT BOOM

LATE MODEL — VERY GOOD CONDITION

Model 2000B Manitowac Crane and Dragline

1—Model 45 Bay City 3/4 Yard Clam, Drag and Crane

# MANITOWOC SALES & SERVICE C. R. SUNDBOOM

2288 University Avenue

Phone: Mldway 6-8889

ST. PAUL, MINNESOTA

# Roads and Streets' Clearing House REACHES THE MARKET'S HEART

INDIVIDUAL CONTRACTORS

CITY, COUNTY ENGINEERS

CITY, COUNTY OFFICIALS

Long a leader serving the heavy construction and associated fields, ROADS AND STREETS' "cream" circulation goes to the important men in the business. They are the men, who directly or indirectly influence the purchase and sales of new and used equipment and supplies.

When you are "in the market" reach the logical buyer or seller quickly—at a reasonable cost to yourself.

Use the Clearing House!

Just clip the coupon below and attach your copy.

# CLIP YOUR AD COPY TO THIS HANDY ORDER FORM AND MAIL TO

### SLEARING HOUSE SESTION ADVERTISING RATES

TRANSIENT RATE — \$11.00 Per Column Inch Per Insertion CONTRACT RATES — Based on use of total space indicated within yearly period.

year	ly	Þ	e	ri	0	d																		
12	in.																				3	10	1.4	15
24																								
36	in																					10	1.0	Ю
48	in																					9	1.5	X
60	in																					9	L.	HO
90	in														*							5	1.0	55
120	in																					5	).	50
180	in																					9	1.3	25
360																							1.6	×
COL	Y		4	4	N	71	D		4	c	7	1	25	21	12	V	6	-		ı	)	A	TI	R
Fina																								
of																								
zine																								
moc	ch			I	f	ī	D	e	o	ol	F	1	la		d	le	ś	b	d	d		-	0	DI
mus	e i	be		8	e	a	h	¥	ŧ	d		5		d	9	7	8	i	b	e	ĸ	-	Šii	01
clos												-				•								•

# CLEARING HOUSE SECTION ROADS AND STREETS

22 W. MAPLE STREET, CHICAGO 10, ILL.

Number of Insertiens.....

NAME.....

TELL US WHAT YOU HAVE TO OFFER

AND WE'LL SET UP THE AD FOR YOU.

ATTENTION HUNTERS, OIL COMPANIES, SKI RESORTS:

# M-29 CARGO CARRIERS - "WEASEL"



Like New - Ideal For Ice, Snow, Swampy Terrain. Also Complete Stock of M-29 Parts.

CONSOLIDATED INDUSTRIES

P. O. Box 408 - Dover, Delaware - Phone 5956 & 5957

# ATTENTION

CONTRACTORS TIRE SHOPS LEE 1200 x 20 14-PLY TIRES

COMPLETE TIRE AND TUBE - GUARANTEED FREE OF BREAKS - LEE NON DIRECTIONAL TIRES - 75% TREAD

ONLY 150 TIRES - NO TAX.

Prices F.O.B. Minneapolis In Quantities of 6 & up.

Write - Wire or Phone - DON ROOD FEderal 9-8881

# NORTHWESTERN PARTS DIVISION

NAPCO INDUSTRIES, INC.

834 North 7th Street - Minneapolis, Minnesota

# Lima 1201 Shovels

New 1951. 3 yd. buckets. Light plants. One had new diesel and tracks this summer. f.o.b. Midwest - \$22,000 & \$33,000.

N. W. 95 DRAGLINE, new 1952, rebuilt—\$55,000.

\$85,000. Manitowac 3000-B DRAGLINE—\$45,000. 5½ ft. SHORTHEAD & 4 ft. Std. SYMONS. 12-K Gates Allis Chalmers CYRATORY. 4 ft. TRAYLOR TY gyratory. 10° feed. 54 x 24 PIONEER DOUBLE ROLL crusher. 4 x 10 MARCY ROD MILL, with 75 hp mo 44 ten G. E. diesel-electric LOCOMOTIVE.

Construction, Mining & Power Equipment

STANLEY B. TROYER EQUIPMENT CO. Box 97 Phone 500 Croeby, Minnesota

## FOR SALE

(20 ft. 18 inch, 90 ft. 18 inch channel frame con swyor with electric motors.

Three 40 ft. 18 lack pertable with electric meters. Four 29 to 25 ft. 18 lack seaveyers, one 40 ft. 24 inch portable with electric meters.

250 ft. 36 inch channel frame with electric maters. One 60 ft. 86 inch channel frame with electric

maters, 440 ft. 48 inch new conveyor belt, 800 ft. 36 inch, 800 ft. 24 inch new and 300 ft. 18 inch 5 pty. Cone telesmith 4 yard stationary tilt mixer. 8 ft. x 52 ft. auto clara. 8 ft. x 52 ft. auto clara. 11/2 yard.

B & G Sand and Gravel Co.

Ph. Rockwell 3-7411 Rt. 1, Box 402 Burlington, Wisconsin

# FOR SALE

**GOOD Used Contractors Machinery** PRICED RIGHT

- -Cat DB Tractor, S/N 2U-16758.
- 4-A-C HD-20 Tractors w/DDPCU and
- 1—Gebhard 60" Sheepsfoot Roller. 1—Hendrix TS 5 cubic yard Dragline
- Bucket. 1-Esco Medium Weight 6 cubic yard Dragline Bucket.

### ABOVE ITEMS LOCATED UPPER-STATE NEW YORK

- Dual-Drum 34E Paver S/N GD-214.
- -Winslow 30 Ton 26' x 10' Platform Scales.
- 7-Euclid 12 TDT-17 cubic yard Bottom

### ABOVE ITEMS LOCATED IN KANSAS

- 2-A-C HD-20 Tractors w/DDPCU and Dozers.
- -A-C HD-20 Tractor w/Push Plate

### ABOVE ITEMS LOCATED IN NORTHERN CALIFORNIA

- 1-A-C HD-21 with push plate 1600 hrs.
- -Set of Gebhard 60" Sheepfoot roller. -Caterpillar DW-21 Motor Scrapers.
- All have wide heads.
  -Cat D-8 Tractor, 2U Series w/stick
- DDPCU and Dozer. 11-Euclid Model 43 FDT - 13 cubic yard
- Bottom Dumps. 1—Blaw-Knox 20' 25' Concrete Spreader.

ABOVE ITEMS LOCATED IN OR NEAR DALLAS TEXAS.

# MILLER C. BEASLEY MACHINERY CO.

2015 N. Industrial Blvd. - Phone RI 2-2907 P. O. BOX 5266 - DALLAS, TEXAS

# SALE OR RENT

MANITOWOC Model 3000-B Special 50-Ton Lift Crane. Available Immediately.

# ANDERSON EQUIPMENT COMPANY

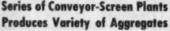
P.O. Box 427, Bridgeville, Pa. Phone: LEhigh 1-6020

FOR SALE
Caterpillar D-7 3T DDCU. Angle Blade \$7,500.00 Caterpillar D-7 3T DDCU. No Blade \$7,500.00 Caterpillar D-4 7U 45 Blade, Hyster Winch Winch
Winch
Winch
Winch
Winch
International TD9 Straight Dazer,
1200 hours
Caterpiller D-2 5U Cable Loader 2,000.00
Wooldridge Pan A-25 4,000.00
Wooldridge Pan A-25 cap increased
to 30 yd. 4,000.00
Caterpillar D-7 4T being torn down
for parts
Tilt Top Trailer, 10 ton cap. 850.00

# FLICK EXCAVATING

510 Pine St. - Medina, Ohio Phone: Park 3-4843

# For Top Efficiency, Kiewit Uses Kolman Portable Plants in Minot



Using a series of Kolman Portable Conveyor - Screen Plants, Peter Kiewit Sons Co., Omaha, produced the aggregates for paving the Air Force base at Minot, N. D., with maximum efficiency and low cost.

On a typical set-up, two Cat D-8 dozers were kept busy charging the reciprocating feeder-trap of a Kol-man 50'x42" Portable Conveyor. The 9'x54" Kolman SB-90 Vibrating Screen scalped out all plus-11/2" rocks, passing the screened materials into trucks.



Kiewit found Kolman's rugged construction took heavy constant loads without a whimper, keeping maintenance expense at a minimum. Best of all, you'll find Kolman Conveyor-Screen Plants attractively priced. Get the complete story before you buy any conveyor or sereen.

Write Today for Literature and Prices

# KOLMAN MANUFACTURING COMPANY

5200 WEST TWELFTH STREET

SIOUX FALLS, S. D.

# **EXCELLENT USED** EQUIPMENT BARGAINS

-Adams 512 Motor Grader-

Serial No. 5913 . . . \$4,490.00 -New model "AS" Highway Bituminous Spreader - used 2 hrs. . . . . . . . . . . . . \$1,795.00

1-10-12 Ton Huber Tandem Roller. 1951 model - Excel-\$4,500 lent .:....

Buckeye - model 406 Ditcher - Good ...\$4,495.00

-Complete Black Top outfit 700 Trail-O-Patch Galion 3 to 5 Ton Roller Miller Tandem Tilt Top Trailer, Littleford #101—1000 Gal. Utility Tank complete. Special Price.

Several TD-18s - TD-14s and TD-9s with Dozers. Also several TD-6s with end loaders.

# CAPITOL TRACTOR & EQUIPMENT INC.

Route #150 Phone 4-2461 Morton, III.

719-21 E. Jefferson St. Phone 4-5600 Springfield, III.

# We do a Nation-Wide business in SHEET PILING

### FOR SALE OR RENT

92 pcs.	73 to 65 ft.	Beth ZP-32	New York
187 pcs.	60 ft.	Carn. MP-115	Illinois
242 pcs.	60 & 50 ft.	Carn. MP-112	Ohio
393 pcs.	48 & 30 ft.	Z-27 & Z-32	Louisiana
565 pcs.	48 & 40 ft.	Z-22 & Z-27	Maryland
380 pcs.	40 to 30 ft.	Beth. DP-2	Connecticut
318 pcs.	30 to 25 ft.	Carn. MP-116	Virginia

Other lengths and sections new and used at most all locations in the United States including storage yards at BUFFALO and CHICAGO — immediate shipment.

McKiernan-Terry and Vulcan Pile Hammers and Extractors.
Construction and railroad equipment.

We are as close as your telephone—you can obtain Steel Sheet PILING BY DIALING CHestnut 1-4474, St. Louis, Mo., collect.

MISSISSIPPI VALLEY EQUIPMENT CO.

# SALE OR RENT

Rebuilt MANITOWOC Model 2000 Lift Crane, Clamshell or Dragline.

Available at once.

# ANDERSON EQUIPMENT COMPANY

P.O. Box 427, Bridgeville, Pa. Phone: LEhigh 1-6020

# FOR SALE

- 1 Adnum Paver 1941. Converted to stone machine.
- 1 Apsco Spregder 1953. Used 4 months. Barber Greene Stone Machine 1946
- BS Apsco 3 wheel Roller 1941. No motor.
- Hauck Heater, Littleford 1950.
- 1 Koehring #19 3/4 yd. Backhoe 1950. Needs 1 HD 10 Allis-Chalmers Bulldozer. Needs re-
- 1 HD 14 Allis-Chalmers Bulldozer, Needs re-
- 1 Quarrymaster I. R., QM3 1951. Complete with all accessories.
- Writing the Company of the Company o
- 4 Westinghouse Transformers 750 KVA, 34,500 Primary Volts. 480V, secondary volts, 60 cy, 1 ph
- 4 Breakers, Main Line. Roller Smith 750 KVA, 600 V, 800 amps, Type HD, secondary. 1 Switch for 750 KVA Transformers, primary less Bus Bar.
- Humer Electric Vibrating Screen #50-2062 Feed End, #50-2061 Discharge End with Control box, 20 V, 60 cy, single phase. 2 Symons V Screens, New, with 5 HP, 1800 rpm ball-bearing motors. Size 36" x 12'. One new, one slightly used.
- 1 Chisholm-Moore Hoist, 20 ton cap., includ-ing 6" x 12" x 20" | Frame, less pull chain.
- 1 Bucyrus-Erie #8 Bit Dresser with all accessories and with spare parts.
- 1 Bucyrus-Erie Well Drill, 1945 Model 27T, Serial 27241, 75 hp, 3 ph. 440 volt motor, 1000 ft. cable.

# Apply:

# KINGSTON TRAP ROCK CO.

Kingston, New Jersey Walnut 4-0300

# UNUSED ATTACHMENTS

Save 50% - 60%

P & H 655-B Shovel Front Complete

P & H 255-A Crane Boom

P & H 255A Sections

P & H 255-A Backhoe

P & H 150 Crane Boom

P & H 150 Sections

B-E 10-B Shovelfront

**B-E 15-B Shovelfront** 

B-E 37-B Shovelfront

**B-E 37-B Fairleads** 

B-E 37-B Crane Boom

B-E 37-B Boom. Base Half

655-B Shovel Front Complete

Bay City 65 Shovelfront

**Bucyrus Erie 22-B Shovel Front** 

Bay City 65 Fairleads

Bay City 65 Crane Boom

Bay City 37 Shovelfront

Bay City 20 Shovelfront

Bay City 20 Hoe Dipper & Sticks

Marion 342 Crane Boom Manitowoc 2000-B Crane Boom

Manitowoc 3000-A Fairlead

Manitowec 3000-A 30' Boom Section

**Byers 83 Crane Boom** 

General 320 Backhoe, Gooseneck

**Koehring 304 Shovelfront** 

Koehring 205 Crane Boom

Link-Belt LS-75 Shovel & Hoe

Link-Belt LS-365 Crane Boom

N. W. (80-D) Shovel Front Complete

**NW-25 Shovelfront** 

N.W.-6 Crane Boom

NW-25 Fairleads

Lima 1001 Crane Boom

Lima 1201 15' Jibs, Complete

Lorain ½ yard Shovelfront Lorain 90 Fairleads

2 yd. Dragline Buckets

Garwood 20-A Crane Boom, 3/4 yard

# UDELSON TRUCK SALES, INC.

3210 Woodland Avenue

Cleveland, Ohio

Superior 1-1666

# FOR SALE

KOEHRING: Model 601 Dragline D-13000 Cat.

Present Location

# WERCKLE CONSTR. EQUIP. CO.

P. O. Box 1656, Rockford, Illinois

Phone 8-1874

# REST MIT TRUCKERS LOGGERS MINE OWNERS PIPE LATERS CONVERT YOUR Rubber-Tire EQUIPMENT to CRAWLER PERFORMANCE Save 50%-ACT NOW!

TRUCK TRACK SALES COMPANY ad IS, Obia 2315 Broadway Avs.

# FOR SALE OVER 300 UNITS

FOR SALE OVER 300 UNITS
All Items Are Owned By Us, Located our Place and Offered Subject to Prior Sale.
Crawler Tractors, Dozers, Hillitts; Rubber Tire Tractors; Loaders; Payloaders ½ to 1½ yd; Forklifts; Motor Graders, Scrapers 3 yds. up; Rood Rollers 3 to 12 Ton Tandem and 3 Wheel; Truck & Crawler Cranes; Yard Cranes; Crane Attachments, Boom Sections, Buckets, Boom, Shavel Fronts, Etc.; Air Compressors; Water Pumps; Duzer Blades; PCUs; Loader Attachments; Drilling Rig & Tools; Hoisting Rigs; Winches; Engines & Power Units Diesel & Gas; Light & Generator Plants Diesel & Gas; Light & Generator Plants Diesel & Gas; Heiders; Concrete Mixer Trucks; Lowboys Single & Tendems; Trailers, Tag.A-Long, Tanks, Vans, Field Offices, Platforms, Reefers, Pole & Boat Trailers; Army Trucks 4x4s, Korf, Fire Trucks; Amphibian Dukw; Truck Trucks; Amphibian Dukw; Truck Trucks; Amphibian Dukw; Truck Trucks; Longous Items.
LIST AVAILABLE ON REQUEST Induces Items.
LIST AVAILABLE ON REQUEST
HOURS: Daily 8 to 5, Saturdays 8 to 1. Closed

# ARTHUR OR MORRIS

2300 N. Lindbergh Blyd.
HArrison 9-1642
We Are Located Only 4 Miles South of Lambert
Airport on Highway By-Pass US 66 & US 67
or 2 Blocks North of the West End of Page
Avenue:

# CHECK

# USED EQUIPMENT BARGAINS

TD-9 w/Issacson Hydraulic Straight Tilt Blade, A 1953 model, in good condition. Runs well. Priced "as is."

Franklin, Pa.

TD-9 w/9WG2 Hydraulic Angle Blade. Late model with 1H pump. New track rollers, pins and bushings, cylinder head and rear crankshaft seal. Recent valve job. 30-day guarantee on 50-50 basis.

Harrisburg, Pa. \$3,500 Jaeger Loader LP-100. Has front wheel drive unit. Front tires were recapped and both tires and machine are now in good condition.

Kingston, Pa. \$11,000 D-7 w/Bullgrader. Pony engine just overhauled. New housing, rollers and panel dials. Master clutch repaired. Guaranteed on 50-50 basis.

\$5,000 Montpelier, Vt.

TD-14 w/Isaacson Angle Doxer. This is in good shape. Repaired final drive. New parts in track and new clutch. Lots of running time left. 30day parts and labor guarantee on 50-50 basis.

Syracuse, N. Y. HD-9 w/2 cu. yd. Tractomotive Loader. In operating condition, but an excellent buy at less than  $\frac{1}{3}$  of new

State Equipment Companies, 3725 North Front St., Harrisburg, Pa.

Write or Call Dick Carlton for Further Information Regarding Above Equipment



SYRACUSE, POTSDAM, ALBANY, N. Y. MONTPELIER, VT. HARRISBURG, PHILIPSBURG, KINGSTON, FRANKLIN, PA.

# FOR SALE

LIMA - Model 703 13/4 Yd. Standard Shovel, Cat. D337 Diesel with Torque Converter. New April, 1957.

# ANDERSON EQUIPMENT COMPANY

P.O. Box 427, Bridgeville, Pa. Phone: LEhigh 1-6020

# FOR SALE - RENT - RENTAL PURCHASE

LS-98 Link Belt Drag - Shovel - Clam, Cat Diesel 1955 rig A-1 Condition, \$19,500.00.

1955 Model 660 Heavy Duty Adams Grader, Cummins 190 hsp diesel, scarifier, 1400 x 24 tires, front seat start, power shift moldboard. A-1. \$10,500.00.

Adnun Asphalt Paver 8' w/ext. gas power, elec. screed, good condition.

A real bargain at \$1950.00.

Cat 12 Grader, Hyd. steer, 9K w/new 1300 x 24 rubber, cleaned & painted. \$2,750.00.

La Plant-Choate 12-15 yd. Scraper, completely rebuilt, good rubber, cleaned & painted A-1. \$3,250.00.

Galien 5-8 ton Relier, Torque Convertor, good condition. \$3,850.00. (2)  $4\frac{1}{2}$  to 6 yd. Scrapers—one Hyd., one Calle, good cond. Each \$350.00.

1948 Jeep w/Auburn Elec. Trencher, good but needs some work a repossession—bargain at \$850.00.

LeT Model "LS" Scraper in good cond. Only \$1,950.00.

(2) 1953 model LeT "D" Roadsters, new 1800 x 25 drive rubber, very good 1800 x 25 scraper tires—checked over, cleaned and painted ½ good, at \$8,750.00. Cat MD-8 Tree Dozer & Brush Cutter for D-8 "Y" type. New, Never been used—New Price \$4,500. Our price only \$1,750.00.

Parsons Model 210 Loader Ditcher, digs 8½' x 24" wide—good, but needs some work on gas engine—fleat bargain at only \$1,850.00. Shovel Front for Link Belt—LS-98, New in 1955—never been used sells for \$5,400—our very low price only \$2,950.00.

New Barber-Greene 150 to 200 TPH Asphalt Plant Mod. 847—Complete. New in July 1957—Used on one 40,000 ton job—sells as equipped \$118,000—will consider rental with right party—this plant is better than new.

Set Rails & Pads for Cat D-8 off of S/N 2U21450—export—put on new at \$2,900—these have pins and bushings turned and measure out 60%—Very good cond.—only \$1,250.

Marion 3/4 yd. Hvy. duty Drag & Backhoe—Cat diesel—good cond. motor just rebuilt—Bargain \$6,750.

12' Buckeye Chip Spreader in new condition-only \$825.

(2) 2400 x 29 tires that would be excellent for a scraper—both have factory repair but tread about 75%—good at \$450.

1953 TD-9 Hiloader, good mechanical cond. including rails & rollers. Bargain at \$3,250.00.

Many other bargain items - Call or Write on what you need.

# **AUSTIN GREENE & ASSOCIATES**

Yard — 2740 E. 85th St. Phone Highland 4-7681 Office & evening call Fleming 3-1482

# BULLDOZERS CRANES

# SHOVELS

SURPLUS TO YOUR NEEDS? We offer a NEW Plan . . . To Eliminate Your Equipment Sales Problems!

WE SELL FOR YOU
WE STORE FREE UNTIL SOLD
WE SELL AT YOUR PRICE
OUR EXPERT FULL-TIME

SALES FORCE WORKS FOR YOU . . . . AND GUARANTEES SALES!

NEED CASH?

We will advance a substantial part of the value of your equipment immediately upon consignment to us! Let Us Show It and Sell It!

# **EQUIPMENT MART**

Of New York Inc. 35-18 Laurel Hill Blvd. Maspeth, New York, N.Y. STillwell 6-8460

DEPENDABLE USED MACHINES
Unit 1020 backhoe with 36' bucket
Jeep-A-Trencher with 8. D. blade
Hopto 360, upper works only
Lorain 778 1½ yd. shavel front
Pioneer conveyors various sizes
Hydrocrane Model H-3 truck crane
TRACTOR & EQUIPMENT CO.
10032 Southwest Highway Ook Lawn, IlL.

# EQUIPMENT FOR SALE

Insley % c.y. crane, serial number L-7499, with Chrysler gasoline engine, excellent condition, with fifty foot boom, two-piece jib, % c.y. Erie clamshell, % c.y. Hendrix drag bucket, % c.y. back hoe & Rad-O-Matic tagline. Will sell each item separate or as a whole

Model S Quickway crane, serial number S-744, with 25 foot boom, mounted on Chevrolet truck, with 3/8 c.y. drag bucket, 3/8 c.y. clamshell bucket.

International TD-18A Tractor, serial number 24670.

Sasgen heavy duty model DD40 double drum hoist with electric starting. Beaver Hoisting Tower, 3200% Design load, 150 feet high with safety device and Chi-

cago boom.
Winslow 23 ton 3 compartment Bin-A-Batch,
complete with scales, hopper and testing
weights.

Jaeger 165 Concrete Mixer, serial number 115258.

Ransome 115 Concrete Mixer, serial number 48455.

Kohler SKW light plant, model SMM61, serial number 119610, SKW AC, 115-230 volt, 60 cycle, mounted on trailer.

cyce, mounted on trailer.

Concrete Vibrator, complete Maginnis Hi-Electric model HGG-4B generator, 2HCV10 heavy duty vibrators, 200 ft. cable and one light adaptor, 2 vibrators, power plant and light plant all in one.

All this equipment is in excellent condition and much of it is less than one year old and used only on one job.

Write for prices and further information.

# L. M. Jones Company, Inc.

2125 S.W. 19 - P. O. Box 2526 Oklahoma City, Oklahoma MEIrose 4-2408 - Night JAckson 8-4857

# FOR SALE Cranes and Shovels

Lorain—Model TL - 20 — Truck
Crane, powered with Hercules
JXD Gasoline Engine Power load
lowering, age 1950. Excellent
condition. Price . . . . . . . . . \$17,500.00

1-Model #6 Northwest Crane.... 24,500.00

1—Model L-41—36 Yd. Lorain Pullshovel 6,000.00

2—Northwest 80-D Shovels, Murphy Power; age 1951. Very good condition.

1-Model 43M Marion Pull Shovel, 1/4 yd. GM Diesel Engine, Allison Torque Converter, T.C.D.A. 535 air controls. I year old.

Bay City Shovel Model 42, 3/4 yd... 3,500.00

Northwest Model 25 Pull Shovel, Murphy Diesel engine ........ 12,750.0

1—Shield Bantam truck crane model T-35. Continental gas engine, complete with dragline boom and 3 ace yard shovel front and Page 17 cubic foot drag bucket, mounted on Federal crane carrier with Hercules engine. Three years old.

9.500.00

# CYRIL J. BURKE, INC.

6451 E. McNichols Rd. Detroit 12, Mich. TWinbrook 2-1420 CALL UPON MUTUAL FOR THE NATION'S LARGEST

# PARTS STOCK

Headquarters All Heavy-duty Equipment, Supplies & Parts

• DUMP TRUCKS • LOADERS • CRANES • ENGINES

**Lowest Prices - Complete Satisfaction Guaranteed** 

# MEW and Guaranteed REBUILT E N G I N E S

Completely Dynamometer "Run-in" and Tested in our own modern, extensive rebuilding shops.

- HERCULES
- CUMMINS
- CONTINENTAL WAUKESHA
  - GMC DIESEL

2000 S. WABASH AVENUE CHICAGO 14 ILLINOIS QUALITY — SERVICE — ECONOMY



Telephone: CAlumet 5-3500

# "Wanted-

Blaw Knox (APSCO) Widener. Advise age, condition, location, and price." Write Box 1184, Roads & Streets, 22 W. Maple St., Chicago 10, III.

# Convert Your Assets Into Cash With a Thorp Credit Auction

Credit to all buyers—streamlined, on the spot, liberal to buyers—nonrecourse to sellers.

Credit makes the difference between liquidating and getting top market prices.

"Financing is our Business . . . . Nationwide Service"

For details, write

- AUTO DIVISION -

THORP FINANCE CORP. THORP. WIS.

# For Sale

- 1-53x60 heavy-duty, double impellor, lowa Mfg. impact breaker, complete with 50"x14'x6" heavy-duty cast manganese feeder. Used 7 months.
- 2—42" conveyors. One conveyor 155' long; the other 160' long. Used 7 months.
- 1-McCully gyratory crusher #11.
- 1-Marion electric shovel, Model 6RS.

Numerous other units including ½-yard to 2½ yard shovels; Murphy & GMC power units & generator sets. Screens, jaw crushers, rolls, bucket elevators, etc. Some units mounted on rubber-tired chassis.

Write for complete list and prices to

Concrete Materials & Construction Co.

P. O. Box #790 Cedar Rapids, Iowa

# Used Equipment BARGAINS

Here are a few of the exceptional bargains in Used Equipment available at Missouri Valley Machinery Co. Write us for complete listings and descriptions. The equipment you've been seeking is probably on our lot.

# 2 LOW-BOY TRAILERS

LaCrosse Model DF6T 24-Ton Capacity Trailer Tandem Axle and Gooseneck 8:25x15 Tires Excellent

# ARMSTRONG

27-Ton Capacity Tires and Bed Very Good Excellent Buy Write for Details

# LINK-BELT, LS-81

1 cu. yd. capacity machine CAT D8800 Power Unit Very good operating condition

# WOOLDRIDGE MODEL TC-170 SCRAPER

20 cu. yd. Capacity Large Tires Group, 21:00 x 24 and 24:00 x 29 Roll up Dump Type Excellent

401 North 12th Street Omaha, Nebraska

# MISSOURI VALLEY MACHINERY CO.

Your CATERPILLAR Dealer for Eastern Nebraska & Western Iowa CAT is Reg. U. S. Pat. Off.

# FOR SALE EUCLID REAR DUMP TRUCKS

Bucyrus-Erie Draglines, 2½ yd. to 8 yd. Bucyrus-Erie Shovels, ¾ yd. to 8 yd. Northwest Draglines, ¾ yd. to 2½ yd. Northwest Shovels, ¾ yd. to 2½ yd. to 5 yd. Manitowoc Draglines, 2½ yd. to 5 yd. Manitowoc Shovels, 2½ yd. to 5 yd. Marion Shovels & Drags, 4 yd. to 9 yd. Lima Shovels & Drags, 1½ yd. to 6 yd. Osgood Shovels & Drags, 1½ yd. to 6 yd. to 2½ yd.

Caterpillar Graders & Dozers.
Hi-Litt Shovels.
P&H Truck Crane.
2400 Lima Shovel front attachment.
4500 Manitowoc Shovel front attachment.
6" and 9" Drills. Diesel and Electric.

other equipment available not listed above.

# WILLIAM LUBRECHT, III Construction Equipment

311 W. Diamond Ave. - Hazelton, Pa. Phone: Gladstone 5-4041 or 5-0253

# **Concrete Paving** Spread

# FOR SALE

# **GRADING EQUIPMENT**

- 1. Cleveland Formgrader
- 2. Cleveland Planer
- 3. Shopbuilt Formgrader
- 4. Steel Forms
  - 9" Forms 5950 ft.
  - 6" Forms 2310 ft.
  - Form Pins 725 ea.
  - Miscl.-Pin Pulers, etc.

- MIX-PLACE-FINISH EQUIPMENT 1. 34-E S. D. Foote Paver
- 2. Water Truck
- 3. Pull Tank
- 4. Vibrating Screeds
- 5. Blawknox Finishing Machine
- 6. Lakewood Finishing Machine (Widening)
- 7. Koehring Bull Float
- 8. Miscellaneous
  - Stripeing Machine
  - Mules

  - Hand Bull Float, etc.
  - 75 gal. Cure Spray
  - Steel Sled

# PLANT EQUIPMENT

- 1. 75 ton 3 Compartment Bin Weighbatcher
- 2. Butler Cement Plant
- 3. Cement Car Scoop

### FIELD LAB. BUILDING

Curing Tanks Beam Boxes

# BARRICADES-SIGNS-FLARES



# MARVIN BROWN

P.O. 14117 Ph. JA. 4-7898

HOUSTON, TEXAS

(Equipt. Stored Houston Yard)

4425 Dupont St.

# REMEMBER LAST WINTER?

With It's

COSTLY DOWN TIME . LOST MAN HOURS EXPENSIVE REPAIRS . POOR SERVICE

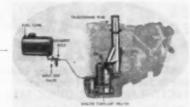
> Because Your Equipment Didn't Start THIS WILL SOLVE YOUR PROBLEM

# ENGINE HEATING UNIT

WHILE THEY LAST

ORDER

NOW



In Quantities of 3 Or More \$12.95

\$14.95 ca.

In Single Units

Shipping Weight 5 Lbs. Each

A Device For Warming The Water In The Cooling System Of Any Gasoline Or Diesel Engine During The Period That The Engine Is Shut Down.

- . SIMPLE INSTALLATION
- NO COSTLY ELECTRICAL WORK
- CAN BE USED WHEREVER EQUIPMENT HAPPENS TO BE
- · COMPACT STURDY
- COMPLETE WITH FUEL TANK, SHUTOFF VALVE FUEL LINE, ETC.
- . OPERATING & SERVICE INSTRUCTIONS

- · CRANES
  - TRUCKS
    - BULLDOZERS
      - . LIFT TRUCKS, ETC.

----- MAIL THIS COUPON

# REUBEN R. GRAFF CO. - DEPT. R.S.

6114 So. Wentworth Avenue CHICAGO 21, ILLINOIS

TERMS: Check With Order Or 25% Down With Order And Bal-ance C.O.D. - All Sales F.O.B. Chicago.

Address										 	4.0.1	,					 	 	
City			. 1			 				 . !	Sta	te					 	 	
	Enclosed	: [		Cas	h		C	he	ck	[		Mo	ne	y (	)rd	er			

# FOR SALE

Barber-Greene Model 879 FINISHING MACHINE Price \$6,000.00

TD24 TRACTOR

International Model TD24, Serial 5187, Long Track, 7 Roller Tractor with Push Plate. New Rails. This Tractor has not worked the past two seasons.

> Price \$15,000.00 MOTOR GRADER

Caterpillar 212 Motor Grader with Cab. 2500 Hours. Price \$5,500.00

> Write or Call: ARNOLD RUUD

Sweeney Bros. Tractor Co.

1622 Main Ave.

Phone 2-3305

FARGO, NORTH DAKOTA

# FOR SALE

**Present Location** 

# WERCKLE CONSTR. EQUIP. CO.

P. O. Box 1656, Rockford, Illinois

Phone 8-1874

# FOR SALE

G.M. Diesel power, 24" tracks, 24" & 36" digging buckets. Delivered new in June 1956. A-1 condition ATTRACTIVE PRICE FOR QUICK SALE

RAY BOEHLKE

2050 W. Brown Deer Road - FL 2-7494 MILWAUKEE 17, WISCONSIN

# FOR SALE

1 Etnyre Asphalt Distributor, 1316 Gals., 1956 Model, Full Circulating System, mounted on 1953 International L-184; 1 Conveyor, 25 ft., Cleats and Skirt Boards; 1 Car Unloader, 1956 Model, New Machine Guarantee.

FOR FURTHER INFORMATION CONTACT

Mr. F. R. Bradford

P. O. Box 2047

Birmingham, Alabama
Phone: ALpine 2-4515 — Anytime

# **ASPHALT PLANT**

Simplicity 2 ton plant, 5,000 lb. pugmill.

Dryer. Dry and Wet Dust Collectors. Cold and Hot Elevators. Electric power. Plant only 6 yrs. old. Excellent condition.

# The McLean Co.

3525 Lakeside Ave. Cleveland 14, O. Tel. Express 1-8171

# WANTED

Crane Booms for Models 3000 - 3500 and 3900 MANITOWOC units.

# ANDERSON EQUIPMENT COMPANY

P.O. Box 427, Bridgeville, Pa. Phone: LEhigh 1-6020

# CYLINDER HEAD REBUILDING SERVICE

CRACKS REPAIRED

MACHINED READY-TO-INSTALL

VALVE GRINDING

PRESSURE AND MAGNETIC TESTING

INTERNATIONAL

CATERPILLAR

G. M. C.

BUDA

GAS AND DIESEL

# CHAPIN CYLINDER HEAD CO.

9 miles west of Jacksonville in CHAPIN, ILL. (Morgan County) PHONE #3

# WANTED

# HYSTER D4 BACKHOE

Please state price and condition.

### GEORGE TURNER

2438 North Shore Ave. CHICAGO 45, ILL. Phone Sheldrake 3-8266

Clearing House Ads Bring Results

# **REAL BUYS**

### ASPHALT FINISHER

Barber-Greene 1951 Model, Good cond.

### **DRYERS**

84"x23" Lasker

### CRANE

I C.Y. Link-Belt LS 90 Cat. D318 Engine. Good condition.

## TRENCH ROLLER

Galion 20" Roll-Like New.

### RUBBER TIRE TRACTOR LOADER

1956 Fordson Major Diesel-36 Drawbar Horsepower. 14x30 Tires. Like new.

### PORTABLE BOILERS

95 HP Locomotive Type, on semitrailer. 75 HP Scotch Marine.

### OTHER EQUIPMENT

Oil Burner Air Washer Feeder Bin Clamshell Bucket Car Mover Auto, Boiler Feedwater Pump

This equipment has been well cared for and will stand rigid inspection. Priced right for quick sale.

## GALLAGHER ASPHALT CO. 181st Street and Indiana Ave. (Route 83) Thornton, III.

Phones: TR 7-7160 IN 8-5010 (Chgo)

# FOR SALE

# MANITOWOC 3000B

50 Ton Capacity Cummins Diesel with Torque Converter. 18'4" Crawlers with 33" Treads. 120' Boom and 20' Jib. Crane in first class condition. New in 1952.

# MANITOWOC 3500 LIFTING CRANE

60 Ton Capacity, Cummins Diesel with Torque Converter, 18"4" Crawlers with 38" Treads. 140' Boom and 30' Jib. Crane in new condition. One year old. Both of above Cranes equipped with block and Overhaul Balls ready for work.

# EQUIPMENT RENTALS & STEEL ERECTION CORP.

1601 Oliver Ave. - MElrose 7-1477 INDIANAPOLIS, INDIANA

# FOR SALE OR RENT

Lima Diesel Crane. Model 602. 1½ yd. bucket and 30 ton crane capacity. 120 ft. boom, plus jib. Independent boom hoist. General Motors 174 HP diesel engine. Crawlers 16'10" long.

Price \$20,000 f.o.b. car.

# WHISLER EQUIPMENT CO.

1906 Railway Exchange Bidg. St. Louis 1, Missouri

LIMA #1291 Shovel, 3 cs. yd. Ser. #327322. New 1951. Cummins Diesel. Rebuilt front. Excellent condition. #22,500 Ge. Rental purchase.

LORAIN TL-25 Backhee. Ser. #20202. New 1950. Arched boom, Overhauled. Excellent. \$8,000.00. Yard. Dragine attachment available for \$600.00. Rental purchase.

2 to consecute Hydro-Crane on Chevrolet truck.

purchase.

PITMAN Model #300 Crane on tandem L 100 International truck. Excellent. \$4,836,00. Yard.
Rental purchase.

MICHIGAN 175-A. 2½ eu. vd. Tracter shevel.
New 1956. Excellent. \$14,000,000. Yard. Rental

New 1996, Excellent, \$14,000,009, Yard, Mental purchase.

Shorel backet 1½ yd. complete for P. & H. #555A. Brand new. Ameco. \$1,250.00. Yard.

BACKHOE ATTACHMENTS:—

For Michigan T6D, P. & H. #255A., Lorain L-50, Byers #83, Link-Belt L8-68. Some like new. Yard has various SHOVEL ATACHMENTS:

MENTS:

AMSHELL A DRAGINE DIJCKETS. Various Processing Statements.

NOW. Teles. A DRAGLINE BUCKETS. Various sizes and makes from % cu. yd. up. Some are new. Cut prices. Yard. DRAGLINE BOOMS. Various sizes and makes. some new Yard. WRFCKING BALLS. ISOO Ib. and 3500 Ib. Yard. RONSOME II-S. Concrete Mixer. Wisc. air cooled ensine. Soff priming pump 7.50 x 16 pneu. Vites Used but little. \$1,000.00. Yard. Rental purchase.

Used but little, \$1,000.00. Yard, Rental purchase,
DAVEY 210 ft. "SUPER CHIEF" Inte model,
rubber tired Compressor, Hercules Diesel Compictely rebuilt, Guaranteed, \$2,750.00. Yard,
Rent \$200 ms/nasib yarchase processor.
SCHRAMM PNEUMA Tracter. Self propelled,
Loader and isomersor. Oftowa from the
tanchment, Factory built partit on Interattachment, Factory built partit on Intertheel tractor, 1200-23 tires. Excellent, \$3,000.00
Oria, cost over \$10,000.00, Yard, Rental pur-

chae.

PORTABLE CRUSHING 4 SCREENING PLANTS
UNIVERSAL 307-427 RB Jaw Primary w/10'
apron feeder, grizzly Uncrease.

Diesel \$24,500 R0, Rental purchase.
LIPPMANN 247-367 RB Jaw Primary w/apron
feeder. Cat. Diesel. Underconveyer. \$17,500.69,
Rental purchase.

CEDAR RAPIDS SUPER ROCK-IT w/ 22x25 RB.
Jaw, 30''x" Apron Feeder, 24''x16'' RB. Double
roll. 4'x10'' 2-deck vlbr. serven. 2 delivery conrevors. Cummins diesel power. Tandem ruberFront deliy. New 1953. Very good. \$25,090.00.
Rental purchase.

Front dolly. New 1953. Very good. \$25,090.00. Rentsi ourchase.
UNIVERSAL 22930 w/ 20x36" RB. Jaw, Apron Feeder. 39-20 Hammermill. 4"x10" 3-deck screen. Two delivery convevers. Cat. D.-17800 and B-1300 diseate. Single unit Tandews. Front dolly. Good. \$23,500.00. Rental purchase.
PINNET of 20x35" BB. Primary. Agron Feeder. 314,000.00 Rental purchase.
Also have single rb. law crushers 20x36". Si 5x24" and smaller. Vibrating screens. etc. We specialize in this type of equipment. Bend us. your inquiries on what you want. We may have it.

Wenzel Machinery Rental & Sales Co.

S. 10th St. Kansas City, Kansas Tel. Mayfair 1-1710 - 1711 565-67 S. 10th St.

# GOOD USED EQUIPMENT

PRICED RIGHT

1—Cat 70 Scraper. Good rubber, good condition thruout. Cleaned and painted.
F.O.B. Mt. Vernon, III. \$6,000

1—HD-11 with 8' inside blade. Tractor in excellent condition, 1956 model. New motor & winch or P.C.U. F.O.B. Mt. Vernon

# ILLINOIS TRACTOR COMPANY

Waltonville Road-Box 173 Phone 3053

MT. VERNON, ILLINOIS

# FOR RENT OR SALE

Three - Gar Wood 625 Scrapers

Two - CAT D-13000 Power Units

Two - Novo LH Single Drum Hoists

One - Northwest Model 95 Dragline

One - LeTourneau Heavy Duty Ripper

# FEHRS TRACTOR & EQUIPMENT CO.

1809-11 Cuming Street, Omaha 2, Nebraska

Just Released! NEW

# ARMY MINE DETECTOR

THOUSANDS OF USES

Model SCR625A-A portable device for detecting metallic and non-metallic objects. Find buried pipe lines, cables, wires, hidden jewelry, coins, sewer tile, etc.

This unit comes complete with spare tubes, batteries, resonators, and instructions manual—all in wooden chest 81/4" height x 281/4" length x 15" depth. Weight in operation is only 22 pounds. Uses standard batteries.

Shipping Weight Appr. 85 lbs. F.O.B. N.Y. No C.O.D.'s Send order to:

Columbo Trading Co., Inc.



Dept. R&S 395 Canal St. New York 13, N. Y.

# STEEL STORAGE TANKS

Originally Tank Car Tanks

8,000 - 10,000 GAL. CAPACITY

Riveted Construction Ideal for Road Oil, Molasses, Liquid Fertilizer and many other fluids, weight approx. 16,000 lbs. each

Offered at Special Low Delivery Prices
Complete Inventory of Pipe and Steel.

> Write-Wire or Phone **BROWN-STRAUSS** CORPORATION

1546 Guinotte Kanlos City, Mo. Phone HA, 1-1000

# FOR SALE

1-Manitowoc Model 3500 Diesel Liftcrane - Outstanding condition

FORSYTHE EQUIPMENT CO., INC. 37-11 Vernon Blvd. Long Island City 1, N. Y.

# FOR SALE

- 1 ea. 3 yd. 1950 Ransom Pre-Mixer, complete with 60 H.P. electric motor and
- I ea. 3 yd. Cement Batcher.
- 1 ea. 3 yd. Aggregate Weigh Hopper.
- 1 ea. 1953 Jaeger 41/2 yd. Transit Mixer mounted on 1952 model 2262 White

All equipment in good condition and in use at present time.

# ALLEN'S, INC.

200 West 10th Street Wichita, Kansas

FOR SALE WROUGHT IRON CHAIN 70% OFF MILL PRICE 1" open link Navy Surplus, 2-48' lengths per steel drum, 390 Lis. per length, pre-servative disped, Sample Order 2 lengths 10c Lb. 2 508 f.c.b. GROSSMAN'S SURPLUS SO. BRAINTREE, MASS. UNION ST., VI 3-7100

# FOR SALE

Barber-Greene 879-A Finishing Machine, with 10 ft. width. Excellent condition.

Fairleads for 80-D Northwest or 820 Lorain.

GarWood C-80 Cable Ripper.

Bucyrus-Erie Model 22-B Shovel Front.

60 Ft. Crane Boom from 1155 P & H Crane.

Apsco Model P-125 Base Paver.

Caterpillar Model 25 Double Drum Cable Control Unit from D-8 Tractor.

Allis-Chalmers Model 106 Cable Scraper. Like new.

Allis-Chalmers Model HD-11G tractor Shovel. New condition. 1100 hours.

Allis-Chalmers Model HD-9G Tractor Shovel. Completely rebuilt.
Allis-Chalmers Model HD-5G Tractor Shovel. Rebuilt and guaranteed.

Caterpillar D-2 Tractor, Hyster logging winch. Page 11/2 Yard Model RC Dragline Bucket. Never been used.

# McCLUNG-LOGAN EQUIPMENT CO., INC.

4601 Washington Blvd.

Baltimore 27, Maryland

# ASPHALT PLANT

1500# batch type; very, very low tonnage; Has Symons screen, dust collector, drier, oversize electric motors; all push button operation; Includes Cleaver-Brooks automatic boiler and two 8000 gal. steam coiled tanks. Mixing plant on pneumatic tired semi-trailer, air brakes - \$36,000. Located on main line of Santa Fe Railway in Arizona. Free photos available.

# ARIZONA CEDAR RAPIDS COMPANY

Box 6186 — Phoenix, Arizona — Ph. Alpine 3-8205

# FOR SALE

F-800 FORD 4 WHEEL DRIVE HEAVY DUTY TRUCKS

1956 Model, 175" WB, only driven 408 miles, power steering, tires 10.00 x 22.5 x 10 ply tubeless, duals on rear, CVW 26,000 lbs, 10 speeds forward, 2 reverse, snowplow springs, 12 volt system, heater, defroster, tachometer. Good as new, Chassis No. M804-73869.
1953 Model, 156" WB, demonstrator, fire ext., 2 special large rear mirrors, snowplow lights, snowplow springs, 12 volt system, seen 10.00x20x14 ply tires, duals rear. 10 speeds forward, 2 reverse. CVW 24,000 lbs, Chassis No. M804-65912, with or without following attachments now on usit: 5t. Paul body, extra gas tank, 14 foot Underbody Grader, solenoid valves for controls, power crane hoist. Ideal unit for townships, counties, cities and willages for winter and summer maintenance. A bargain. Wonderful condition.

SEE THESE NOW AT OUR FACTORY. PRICED LOWER THAN DEALERS COST

### LULL ENGINEERING CO.

3045 Highway 13 St. Paul 11, Minn.

Phone GLenview 1-1386 Ask for Pat

# ATTACHMENTS AVAILABLE

Northwest - Bucyrus-Erie - Lima - Marion -Link Belt - Lorain - P&H - Manitowoe. Shouals - Backhoe - Clam Drag - all sizes.

JAMES C. FRENCH
P. O. Box 188
Talcott 8-4927
PARK RIDGE, ILLINOIS

# FOR SALE

MODEL 80-D NORTHWEST SHOVEL, DRAGLINE, CLAM-SHELL COMBINATION

7800 series, powered Murphy Diesel, 105' boom Kohler light plant. Now working South Dakota. Available Immediately.

Wire - Call or Write:

# **Wylie-Stewart** Machinery Co., Inc.

- Oklahoma City, Okla. Box 1985 Telephone: REgent 9-0631

# TRUCKS WANTED

Highest dollar value paid for new and used trucks and all kinds of used equipment. All types of truck equipment bought and sold, including war surplus.

Write, phone or wire:

# BILL FISHEL **Vandeventer Auto Sales**

717 So. Vandeventer St. Leuis 10, Ma. Ph. Plankin 1-1750

# SHOVELS, CRANES & HOES

Sargent "410" NEW 36 yd. Trench Hoe, mounted on new Crane Carrier. Big Discount!

Bantam "M-49" 3's yd. Trench Hoe, mounted Reo 6x6.

Insley "K-12" 1/2 yd. Dragline or Trench Hoe, Reconditioned.

Marion "331" 34 yd. Used Shovel or Drag-

Byers "83" 34 vd. Used Dragline, 40"

## TRACTORS & LOADERS

Caterpillar "D-4" Diesel Tractor w/Traxcavator Hydraulic Front End Loader, Rebuilt engine & tracks.

Allis-Chalmers "TLW" Used Tractor w/ Tractomotive Frond End Loader, 3/4 yard. International "TD9" Diesel Tractor w/Bucyrus-Erie Dozer-Loader.

Barber-Greene "545W" Used Rubber-Tired Bucket Loader.

Pettibone "10" Used 1-Yd. Gas Tractor-Shovel, 3 years old.

### MISCELLANEOUS

Jaeger 3 Yd. (41/4 yd. Agitator) Hi-Discharge Mixer. Repaired, Sand-blasted, & painted. Un-mounted.

Gruendler "1024" R.B. Jaw Crusher. Austin-Western "99" 4-Wheel Drive Diesel Motor Patrol. 13' Blade, Scari-

Leland 20-Ton Lowboy Drop Deck Tandem Axle Semi Trailer.

Pettibone-Wood "820A" NEW Windrow Proportioner. Reduced for quick sale. Pettibone-Wood "P620" Used Preparizer. G-M Diesel power. Will rent or sell.

NOTE: All This Equipment Located in our Yard.

# FIGHMY FQUIPMENT COMPANY

120 S. Pierpont - Phone 4-6706 ROCKFORD, ILLINOIS

# FOR SALE

Blaw Knox (Apsco) Road Widner Model 95 Serial Number 222 Tandem Drive Used less than 300 hours Condition: Like New

Location: Bellefonte, Pa. Price, F.O.B. our yard \$7500.00

This machine is a real bargain and would warrant your inspection. It still has the original conveyor belt

# WILSON-BENNER INC.

130 DUNLOP ST. BELLEFONTE, PA. Ph. ELgin 5-4739

# FOR SALE

1 Allis-Chalmers TS-300 Motor Scrape

Serial #972. Acquired 10-31-56 - now approx. 3 years old. Tires in good condition - Transmission and motor completely overhauled less than 300 hours ago. A real horse,

Sale Price: \$16,350.00

### 1 Allis-Chalmers HD21 Tractor

Serial #7600. Purchased new 3-27-57. Torque Converter, "C" frame and Angle Dozer. Used approximately 1,300 hours. Sale Price: \$26,100.00

### 1 Allis-Chalmers T\$360 **Motor Scraper**

Serial #1411. Purchased new 3-27-57. Used approximately 1,200 hours. Sale Price: \$31,200.00

### 2 Allis-Chalmers TS-260 **Motor Scrapers**

Serial Nos. 2606 & 2515. Both purchased new 2-14-57. Excellent throughout. Each used approximately 1,300 hours. Sale Price - #2606: \$24,900.00 Sale Price - #2515: \$23,550.00

### 1 Allis-Chalmers HD16 Tractor

Serial #1592. Purchased new 8-30-56. Torque Converter & Dozer. Used approximately 1,600 hours.

Sale Price: \$20,150.00

# Stanton Building Co.

1012 Baltimore Bldg. Kansas City, Missouri

# BAILEY BRIDGES

Sectional Steel Truss Type Portable - Fully Prefabricated Variable Span and Capacity Cantilever Erection **Expert Construction Supervision** 

**RENTALS or SALES** 

# BAILEY BRIDGE EQUIPMENT COMPANY

1767 Conejo Ave., San Luis Obispo, Calif.

# (15) 1956 USED MACK DIESEL DUMP TRUCKS MODEL B81SX

Reconditioned 75% Rubber or Better 12 yd. Rear Dumpers W/Oak Floor and Wear Plate

Inquire: Bob Meale, Distr. Mgr. MACK TRUCKS INC.

> 3250 Fairfield Ave. Bridgeport, Conn. Phone Edison 3-3154

# DOLLARS FOR 50c

That's Just What We Offer in the Equipment Below

# BUCYRUS-ERIE 38-B SHOVEL FRONT-

11/2 yd. Dipper. Complete Extra Sets of Teeth, Clutches. Bands, etc.

# 22-B BOOM SECTIONS-

# 15-B BOOM SECTIONS -

Extra Parts Drive Sprockets, Idlers, Drive Chains, Extra Parts Drive Sprockets & Idlers, Pins, Bushings, Rollers, Brake Bands, Clutches, etc.

## WISCONSIN ENGINE TYPE L-4-

Complete for Replacement Parts. Pads, Bands, Clutches,

# DONALD B. McNEAL

121st & Loomis St., Chicago 43, III. Phone: PULLMAN 5-3411

# FOR SALE HYDRAULIC CYLINDERS

	Heavy	d	uty	ě	5ı		3	Ş١	8	1	χl	е		1	A,	c	Ħ	n,	K.
	Dig.																		rice Ea.
80 -	234"	X	16"															. 1	\$20.00
178 -	415"	×	8"	,															20.00
91	33.00	w	3300																22.00
40 -	. 5 "	×	Bee																20.00
31 -	6 11	×	4															0	20.00
186 -	414"	×	1136	e															18.00
40 — 31 — 186 — 316 —	315"	×	8//																15.00
"Ites	m w/ste	SF I	doub	le		a	c	ti	n	a									
Cyl. a	re use	d,	but	ė	n		g	10	0	ã		•	0	B	d	il	ic	om.	. Were
																			Quoted

order, deduct 5% disc DALTON SUPPLY COMPANY

Box 566

# **EUCLID TRUCKS**

5-17TD Euclid rear dump, new 1949, 22 ton ......\$7500 each

1-30TD Euclid rear dump, new 1950, 22 ton ......\$12,000

# FRANK FAMALETTE EQUIPMENT CO.

South Church St.

Hazleton, Pa. GL 5-4708

# WANTED

Small Asphalt Plant Approximately 60 Ton Per Hour Capacity Also

Continuous Mix Plant Without Dryer.

P. O. Box 1195 Roads & Streets 22 W. Maple St. Chicago 10, III.

> 5000 to 6000 gallon rebuilt insulated asphalt trailers \$3250.00 to \$4250.00

# Hackett Tank Company, Inc.

1400 Kansas Avenue Kansas City, Kansas MAyfair 1-2363

# PILE DRIVING EQUIPMENT

# VULCAN AND McKIERNAN-TERRY Steam Pile Hammers and Extractors

DROP HAMMERS

STEEL LEADS DRIVING CAPS

PILE DRIVER HOSE HOISTS AND BOILERS

# STEEL SHEET PILING

Pct.	Section	Longth	Location
330	MP-116	45 to 60 ft.	Chicago
300	MP-115	50 to 60 ft.	Chicago
210	MP-112	19 to 21 ft.	Kansas
157	MP-116	27 to 34 ft.	Colorade
262	MP-101	34 to 35 ft.	Nebraska
125	MP-116	19 to 24 ft.	Kansas City
160	MP-115	23 to 25 ft.	Missouri

# CONMACO, INC.

PHONE DRexel 1-3930 814 Konsos Ave., KANSAS CITY, KANSAS

FOR SALE

LATE MODELS MIDWEST LOCATIONS

Manitowoc 3000-B's, 3500's erect cranss —
shovels, long booms, wide long cats
diesels. Also 2000-B's.

Northwest 6's, 80-D's, and 95 cranss —
drags — shovels, diesels, wide long cats
— drags, shovels, diesels, wide long
cats — long booms. Ind. BH's

Bucyrus-Erie 38-B's 51-B's, 54-B's, cranssdrags, shovels, diesels, wide long cats
long booms

Marion, Keehring, Link Belt 6 Lordin model
cranss — drags — shovels, wide long
cats — diesels. Also backhoe equipped
machines, all (ypes.

machines, all types.

JAMES C. FRENCH
P. O. Box 188
228 Berry Pkwy. - Talcott 3-4927
PARK RIDGE, ILLINOIS

# WANTED

**Used Hi-Front Attachment** for MANITOWOC Model 2000.

Used Standard Shovel Front for MANITOWOC Model 3500

# ANDERSON EQUIPMENT COMPANY

P.O. Box 427, Bridgeville, Pa. Phone: LEhigh 1-6020

# INDEX TO ADVERTISERS

Acker Drill Co., Inc	Famalette Equipment Co., Frank. 149 Fehrs Tractor & Equipment Co. 147 Fishel, Bill. 148 Flick Excavating. 140 Ford Motor Company, Truck Division. 74 & 75 Forsythe Equipment Co., Inc. 147 French, James C. 148, 149 Frink Sno-Plows 111 Frink Sno-Plows of Canada, Ltd. 111 Fruehauf Trailer Company. 96 & 97	Manitowoc Engineering Corp
B & G Sand and Gravel Co	GMC Truck & Coach, A General Motors Division	Neo Flasher Manufacturing Co
F. R. Bradford. 146 Bros Incorporated. 34 Brown, Marvin. 145 Brown-Strauss Corporation. 147 Browning Manufacturing Co. 113 Bucyrus-Erie Company. 33 Buffalo-Springfield Roller Co. Division of Koehring Company. 16 Burke, Inc., Cyril J. 143	Hackett Tank Company, Inc	Rogers Brothers Corporation 44 Rogers Company, E. A. 136  Service Recorder Company, The 135 Shovel Supply Company 50 Simplicity System Co., The 117 Southern Tire Company 54
Capitol Tractor & Equipment Inc141 Caterpillar Tractor Co	Illinois Tractor Company	Stanton Building Co
Cleveland Trencher Co., The	International Harvester Company, Motor Truck Division	Texas Company, The - Asphalt Division
Columbo Trading Co., Inc.         147           Concrete Materials & Construction         144           Co.         144           Conmaco, Inc.         149           Consolidated Industries         140	Jackson Vibrators, Inc. 126 Jones Company, Inc., L. M. 143 Joy Manufacturing Company 27	The 18 Tractor & Equipment Co. 143 Troyer Equipment Co., Stanley B. 140 Truck Track Sales Company 142 Tubin Engineering Company 138 Turner, George. 146 Twin Disc Clutch Company 106
Dalton Supply Company	Kenworthy, Glenn	Udelson Truck Sales, Inc
Drott Manufacturing Company	Laclede Steel Company       108         LaCrosse Trailer Corp.       28         LeTourneau-Westinghouse       Company       7, 64, 65, 66, 67, 68, 69         Link-Belt Speeder Corporation       22 & 23         Lubrecht, III, William       144         Lull Engineering Co.       148	Vandeventer Auto Sales
Emico Corporation, The	Mack Trucks Inc	Charles R. Watts & Co. 133

# TONS OF HOT MIX ON THE MOVE



This huge stockpile is being readied for the surfacing of 17 miles of road to replace Rt. 212 near Newell, South Dakota. Northwestern Engineering Co. of Rapid City is using a Cat No. 12 Motor Grader and two D8 Tractors to stockpile 110,000 tons of base course material, 36,000 tons of hot mix and 7,000 tons of shoulder material.

You can see that the No. 12 is doing its job. Plenty of power in that husky diesel engine, and plenty of load capacity on the blade. What you *can't* see is the steadygoing dependability of the machine.

Caterpillar Motor Graders are ruggedly built to stand up month after month on the hardest jobs—jobs that cause breakdowns in graders of lesser quality. The triple box section frame has ample strength to match engine power, and the box section circle and drawbar assembly give rigid support to the blade. Newly designed front axle components have the extra strength for long life in tough going.

# Other New Improvements

Other new improvements help keep the No. 12 the standard of the industry. Adjustable seat and bigger cab
...for more details circle 245 on enclosed return postal card

with better ventilation and 31% more window area increase operator efficiency; longer frame and tandem assure full utilization of the No. 12's versatility-both with chains and 14.00-24 tires.

Add to these features the excellent visibility from the seat, optional in-cab starting and trouble-free tubeless tires, and you can see why production is high and down time rare.

If you're looking for profitable performance with low operating cost, get the complete facts on the No. 12 from your Caterpillar Dealer. He backs the long work life and high resale value of the machines he sells with reliable service and a full stock of Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

# CATERPILLAR\*





# World's longest trench-type tunnel

McIntosh Studio photos

# New 7,479-foot tunnel under Hampton Roads is paved with Texaco Asphaltic Concrete

Contractors

Merritt, Chapman & Scott Corp., New York City (General contractor) Ames and Webb, Inc. Norfolk, Va.

(Asphalt contractor)



This tunnel is part of a \$60 million bridgetunnel facility which links Norfolk and Hampton, Va. across Hampton Roads. The tunnel lies between two man-made islands, each connected with the shore by a bridge.

Traffic through the tunnel in the beginning is expected to average 6,400 vehicles a day. This traffic, which will be concentrated in two lanes, is served by a hot-mix Texaco Asphaltic Concrete pavement. The pavement was laid in two courses, with a combined compacted thickness of four inches.

Rugged, flexible, joint-free Texaco Asphaltic Concrete is a heavy-duty pavement. Its ability to absorb punishing impact with a minimum of upkeep has been demonstrated in tunnels, on bridges, main highways and runways of major airports.

Hot-mix Texaco Asphaltic Concrete. constructed on a flexible base and subbase, is an ideal pavement for the Interstate Highway System. In addition to its proven durability,

superior riding quality and low maintenance. its initial cost is substantially lower than rigid paving of comparable design.

Helpful information about Hot-Mix Asphaltic Concrete and other types of asphalt paving is supplied in the booklet, "Plant-mixed Texaco Asphalt Paving." Our nearest office will be glad to send you a copy.



Laying hot-mix Texaco Asphaltic Concrete pavement on one of the approach ramps to tunnel under Hampton Roads.

. . . for more details circle 300 on enclosed return postal card

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17

